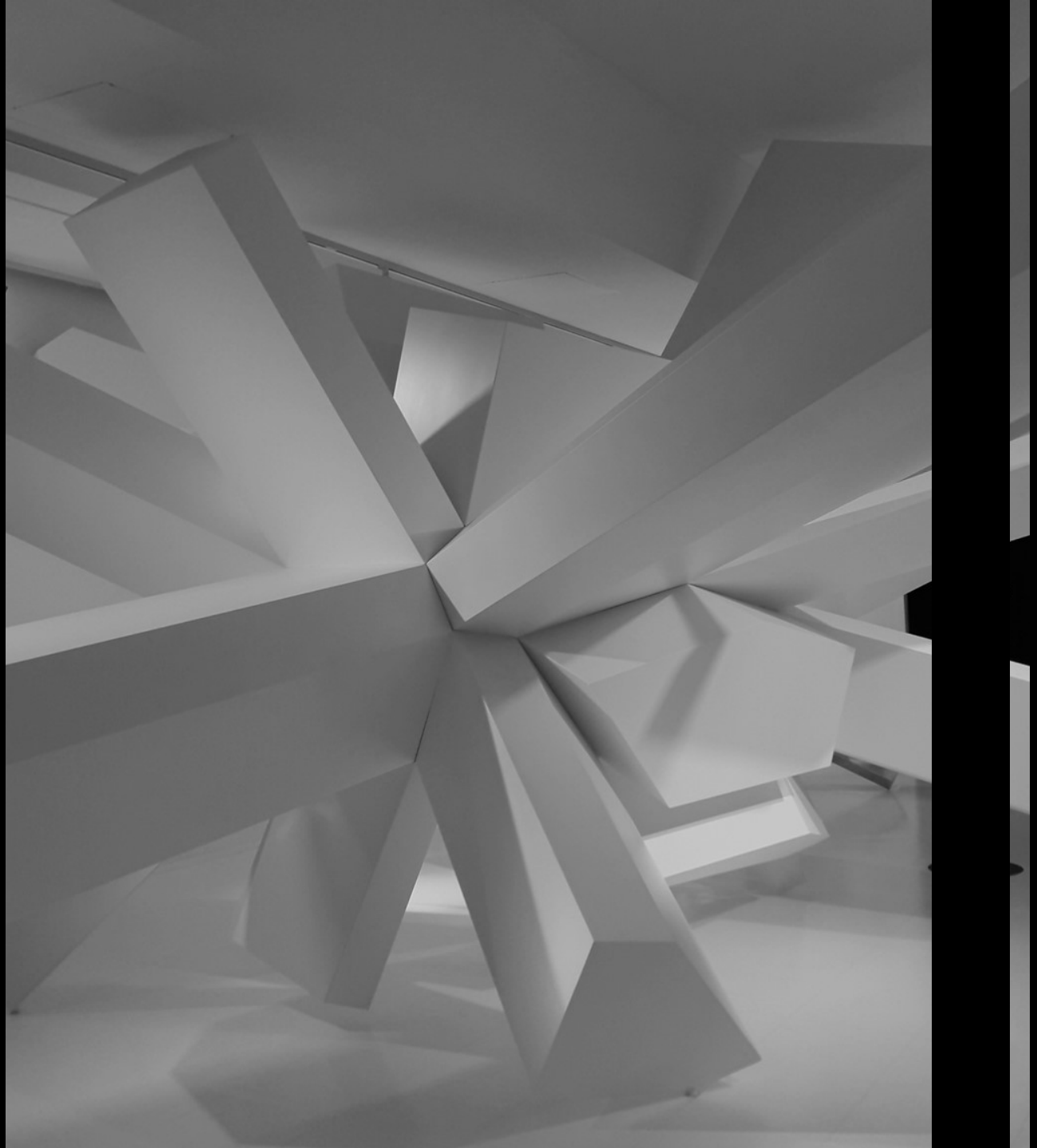


**Design Fiction a decade of  
reflection; *The impact of  
teacher training on  
classroom practice***

**Dr Dawne Irving-Bell,  
Matt McLain and David Wooff**



**Design Fiction a decade of  
reflection; *The impact of  
teacher training on  
classroom practice***

**Technology Education  
New Zealand Conference,  
Auckland**

**1<sup>st</sup> -3<sup>rd</sup> October 2019**

**Dr Dawne Irving-Bell,  
Matt McLain and David Wooff**



**Design Fiction a decade of  
reflection; *The impact of  
teacher training on  
classroom practice***

**Technology Education  
New Zealand Conference,  
Auckland**

**1<sup>st</sup> -3<sup>rd</sup> October 2019**

**Dr Dawne Irving-Bell,  
Matt McLain and David Wooff**



**This presentation has been designed to compliment the conference research paper.**

**It begins with a showcase of design and technology student teachers undergraduate work.**

**Then it moves to present student and pupil outcomes, examples of design fiction work completed under their tutelage of those ex-student teachers who are now fully qualified, many of whom have ten years of experience in the classroom.**



**This presentation has been designed to compliment the conference research paper.**

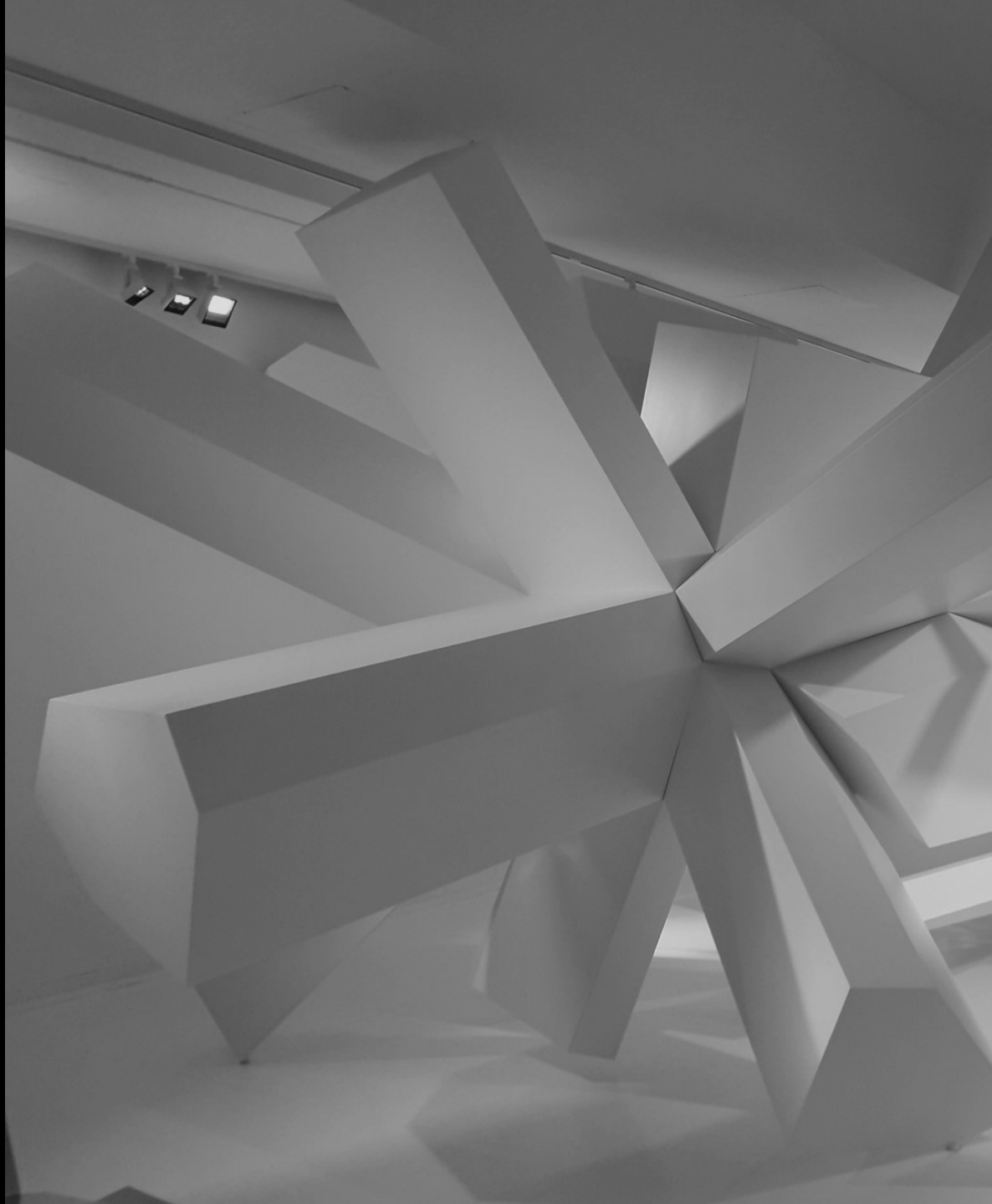
**It begins with a showcase of design and technology student teachers undergraduate work.**

**Then it moves to present student and pupil outcomes, examples of design fiction work completed under their tutelage of those ex-student teachers who are now fully qualified, many of whom have ten years of experience in the classroom.**



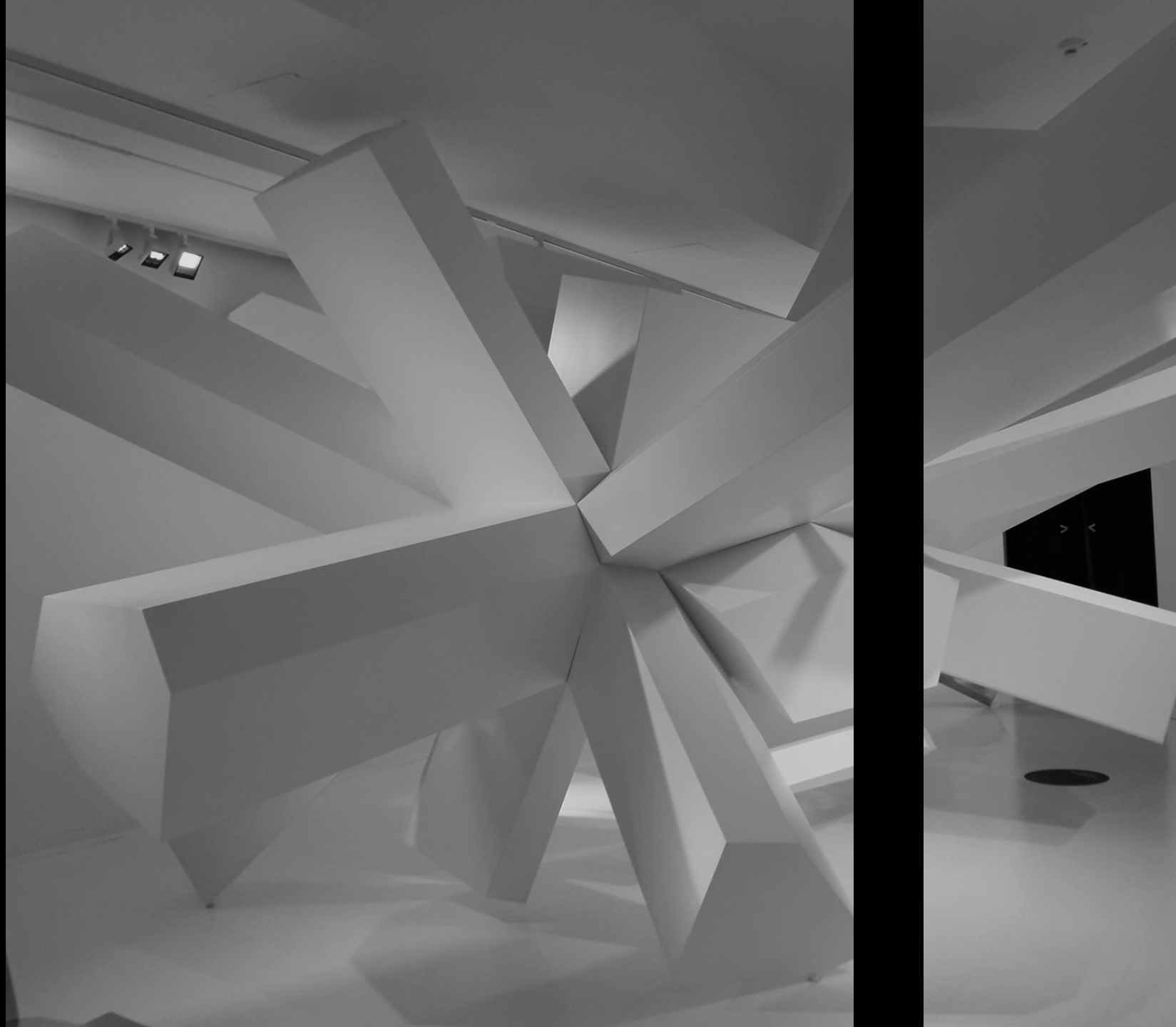
**Before we begin it may be useful to provide a little context behind the presentation.**

**Inspired Sterling (2005), this presentation presents a collection of visual narratives from experienced design and technology teachers who were introduced to the notion of 'design fiction' while following their Undergraduate Design and Technology Initial Teacher Education (ITE) programme (in England).**



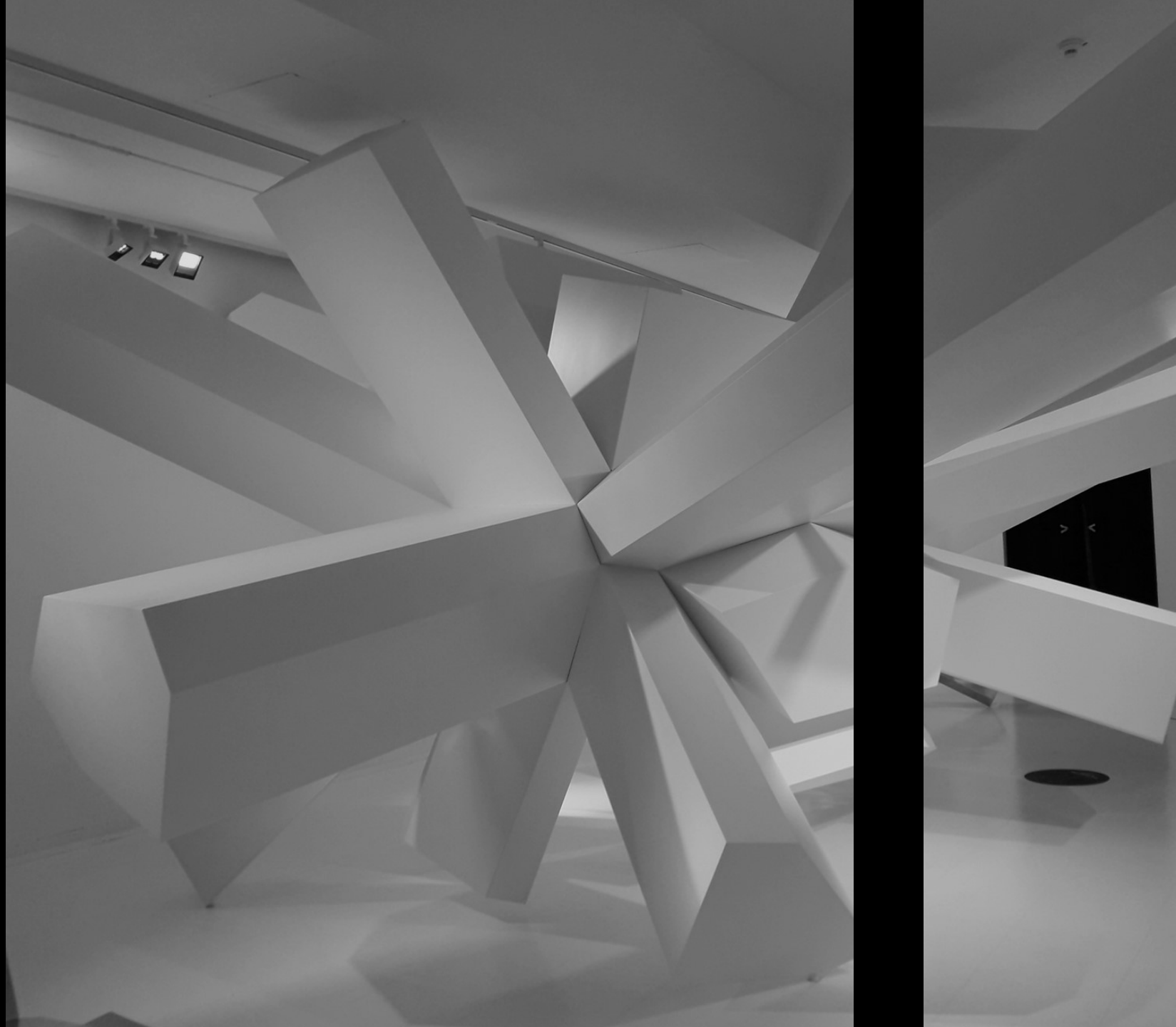
**So, the aim was to use Design Fiction as a catalyst to effect innovative pedagogical approaches to the teaching of design and technology.**

**To support the student teachers to challenge their own thinking, to explore new and emerging technologies, and prepare to deliver this new content in a pedagogically innovative way.**



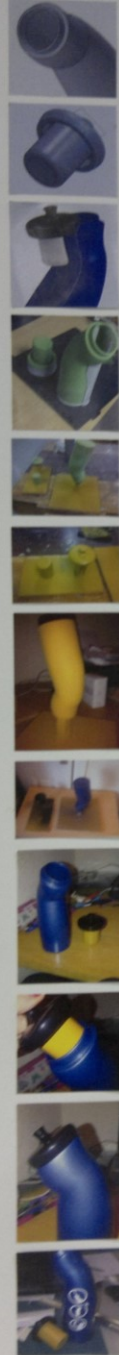
**First this presentation will bring to the fore exemplar work created by the pre-service teachers themselves, who are now experienced teachers.**

**The presentation then shares examples of the participants pupils and students work, and in doing so demonstrates the impact that using design fiction as a catalyst for teaching has had on their own classroom practice.**





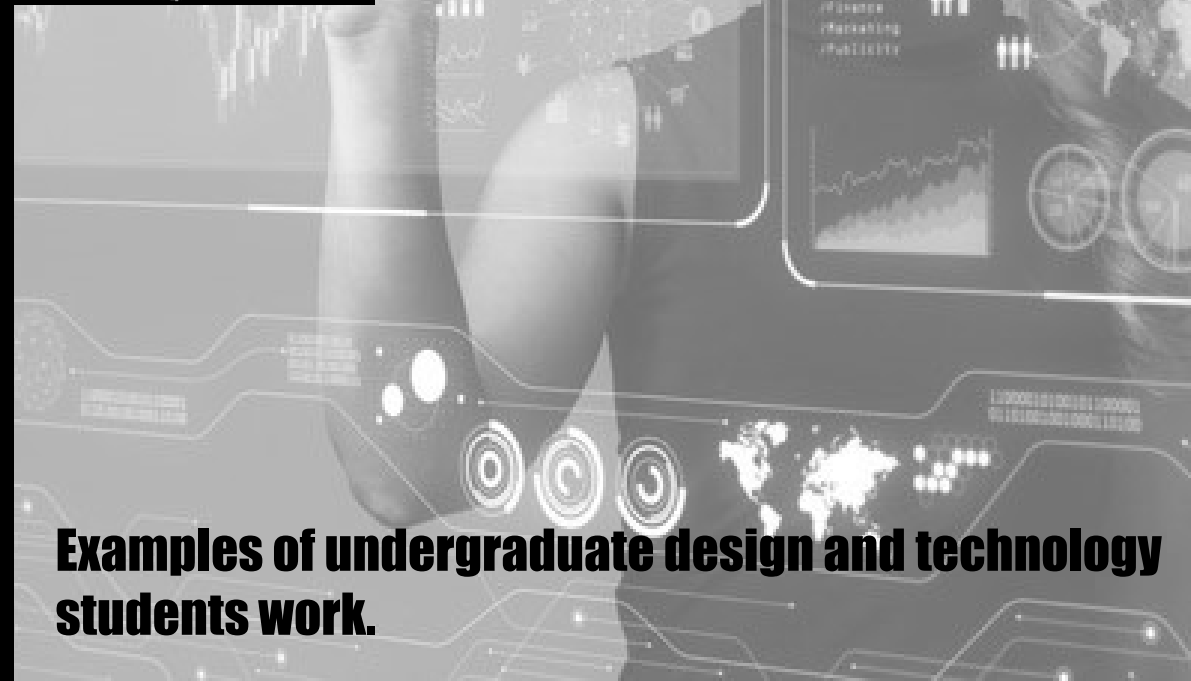
**In this next section we share examples of the participants work from when they were undergraduate design and technology students**



S T3101 - Product Modelling  
K Kathryn Elliott  
2 827156

***“Design as a means of  
speculating how things  
could be”***

**Dunne and Raby, 2013:2**



**Examples of undergraduate design and technology  
students work.**



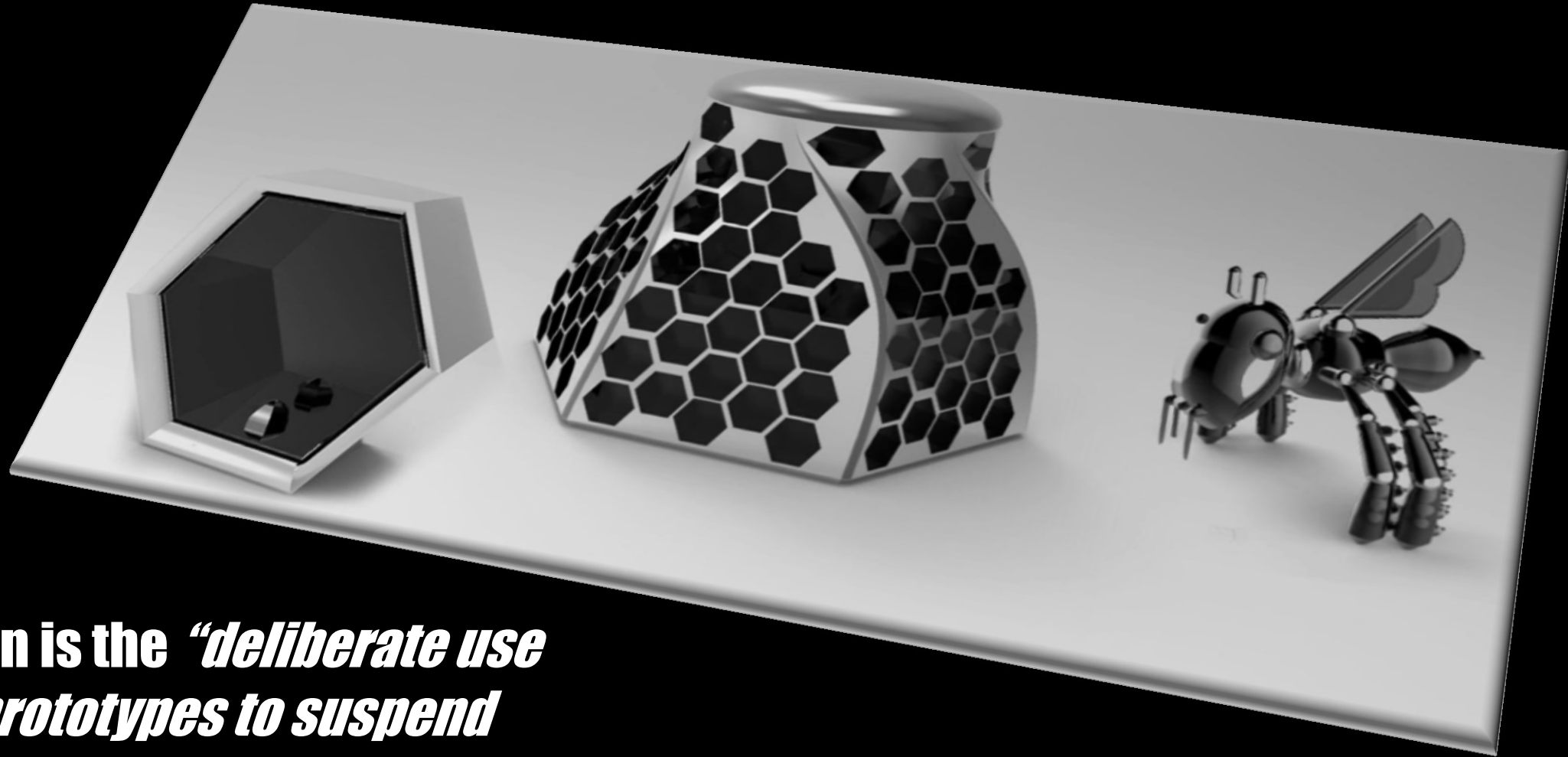
**Examples of undergraduate design and technology students work.**





**Examples of undergraduate design and technology students work.**

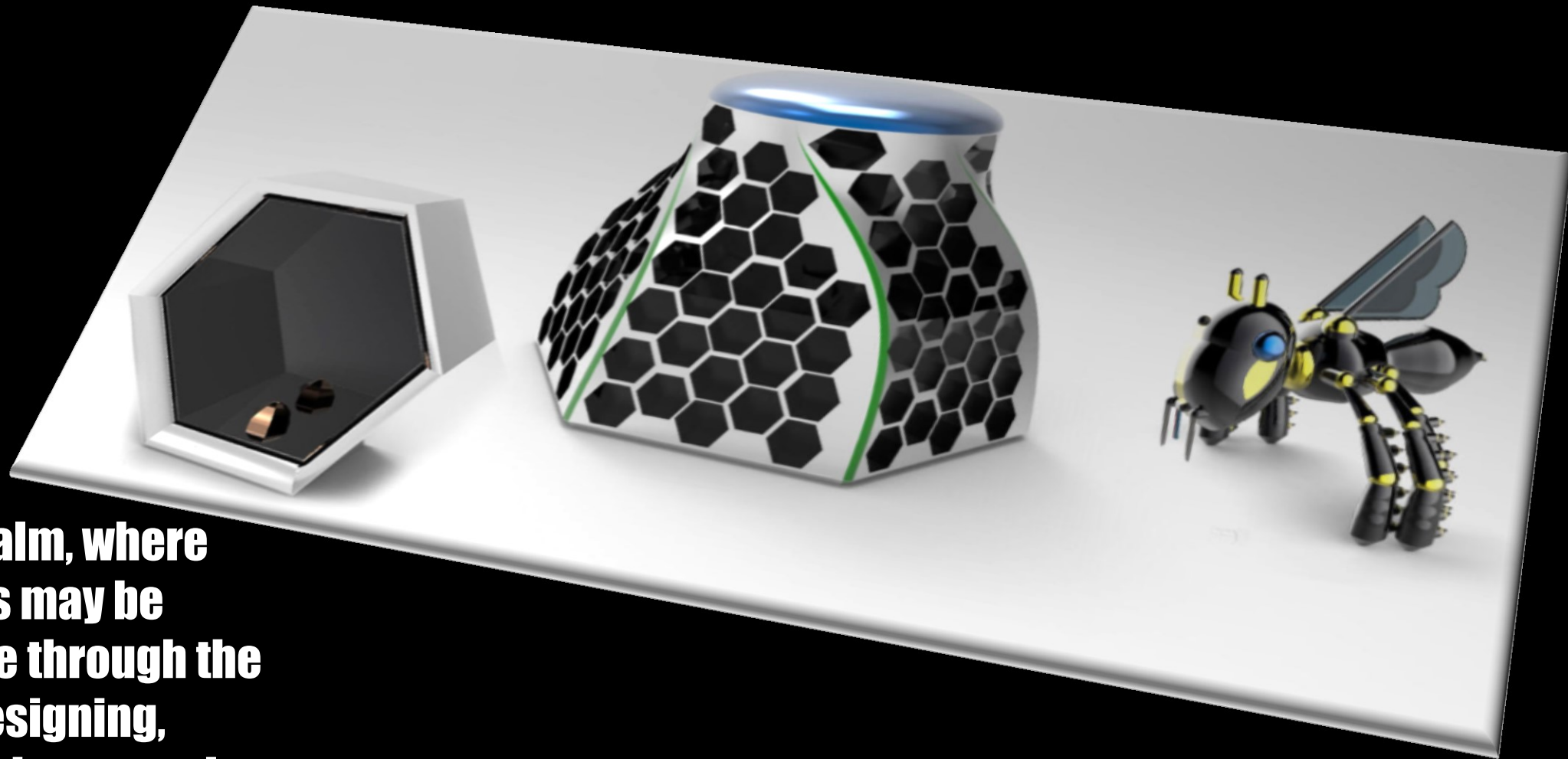
# Using design fiction to Things



**Design fiction is the “*deliberate use of diegetic prototypes to suspend disbelief about change*”**

**Sterling, 2012:1**

**Examples of undergraduate design and technology students work.**

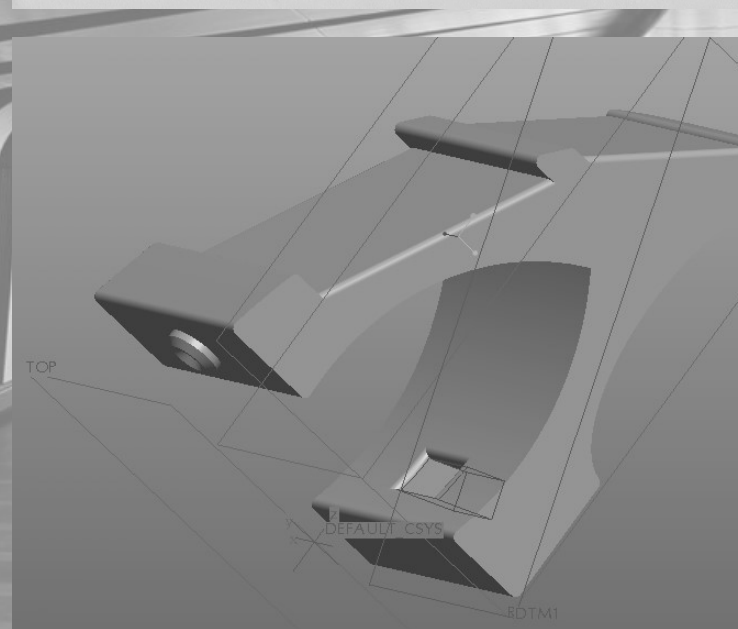
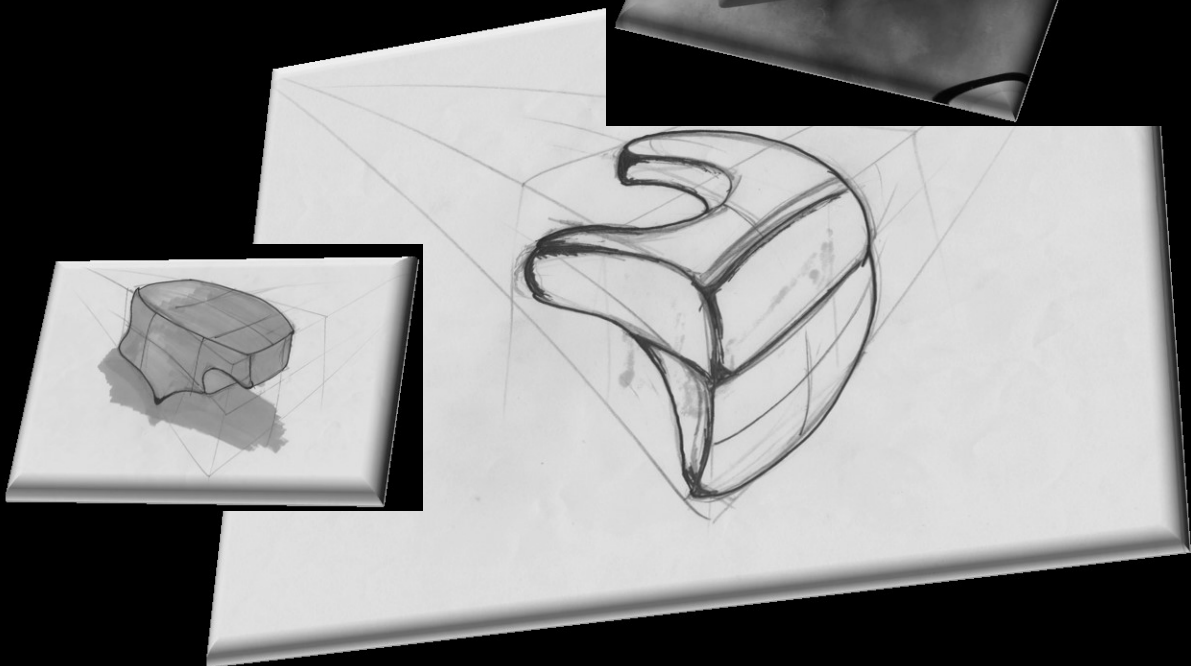
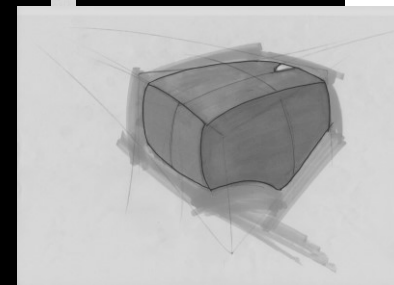
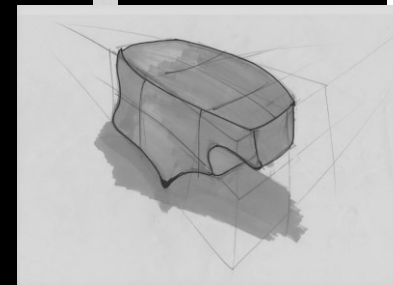
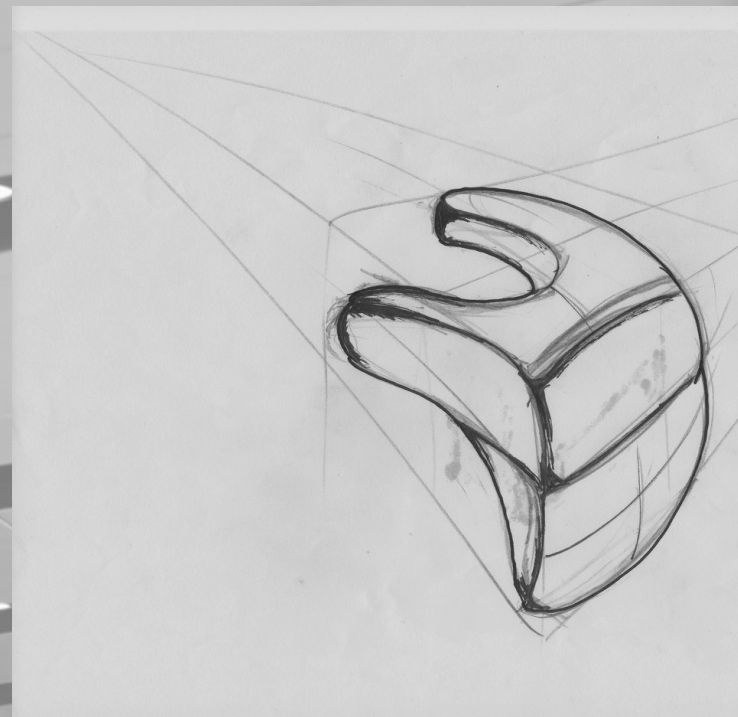
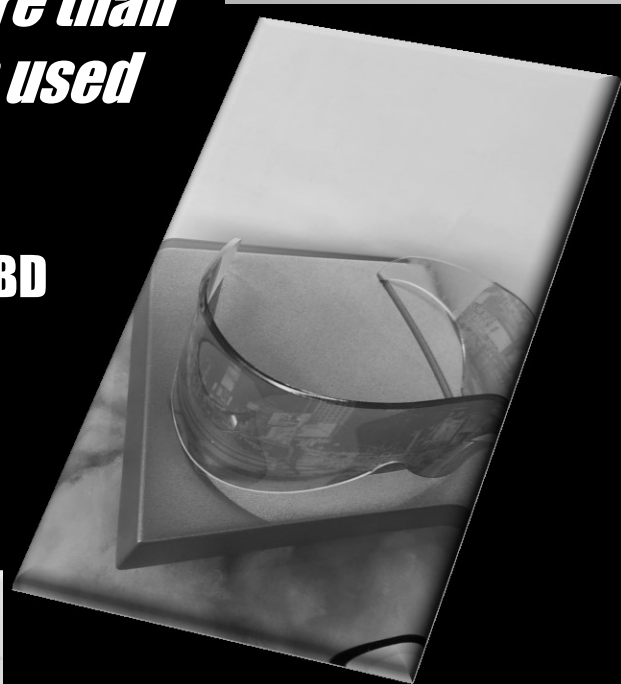


**A fictional realm, where  
future visions may be  
brought to life through the  
process of designing,  
modelling and prototyping.**

**Lindley, 2018**

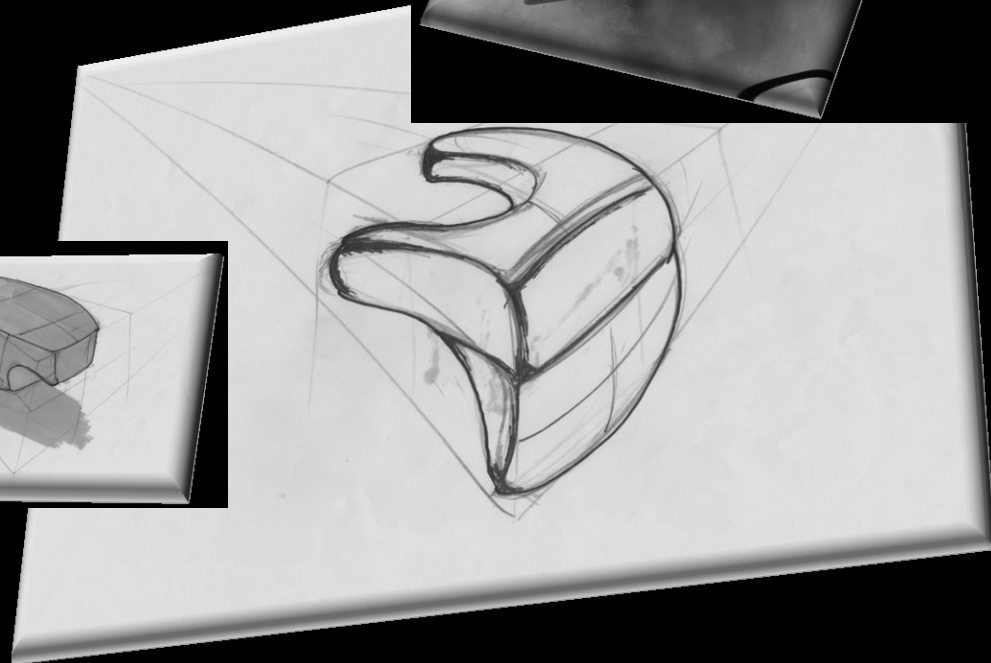
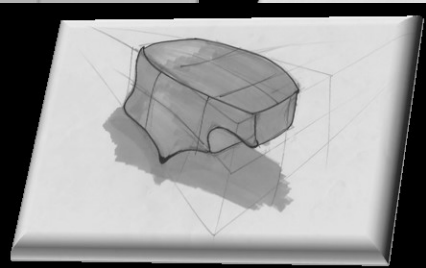
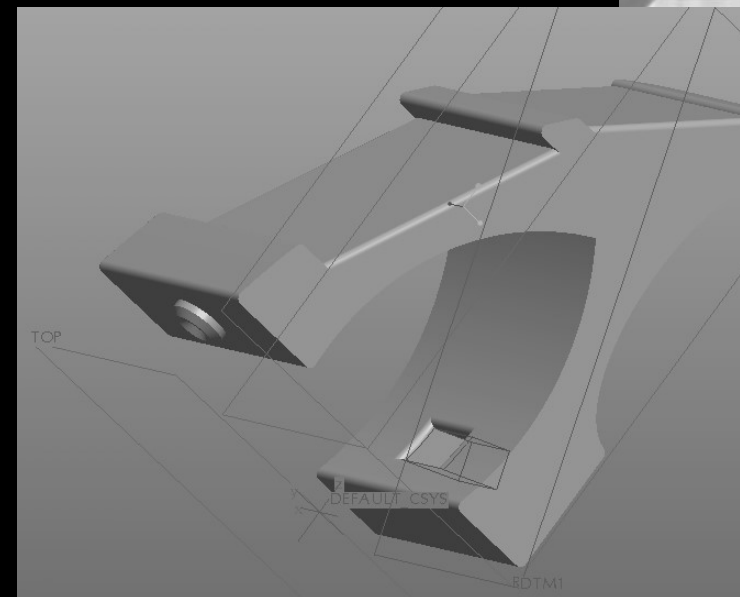
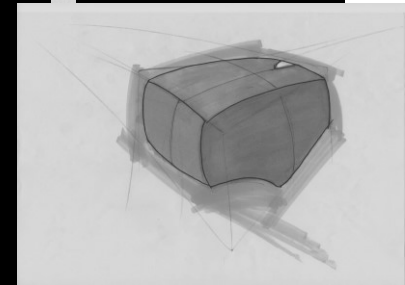
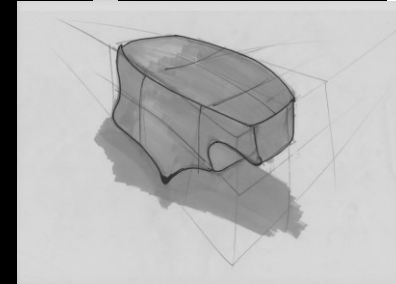
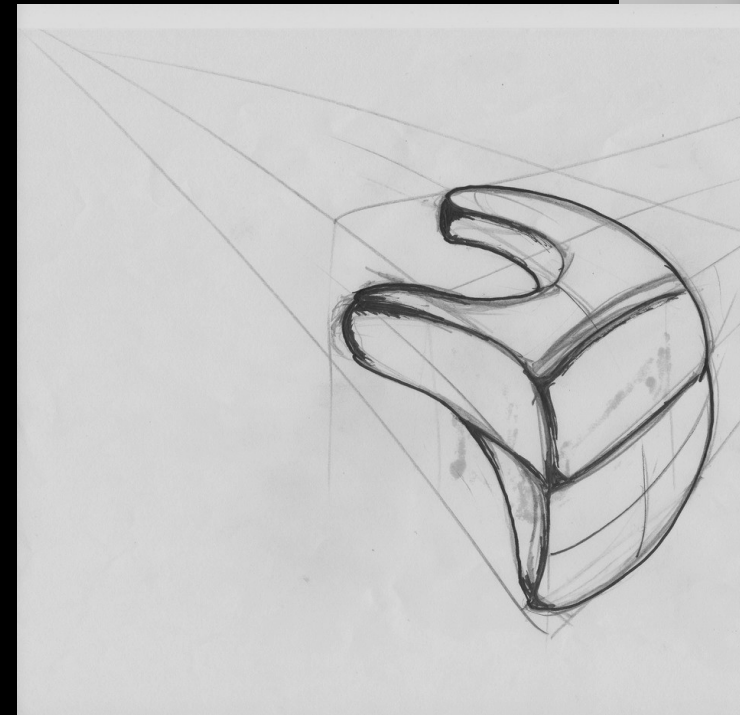
***...Design Fiction “portrays a different kind of future than you might have been used to”***

**Near Future Laboratory, TBD  
Catalogue, 2019:1**

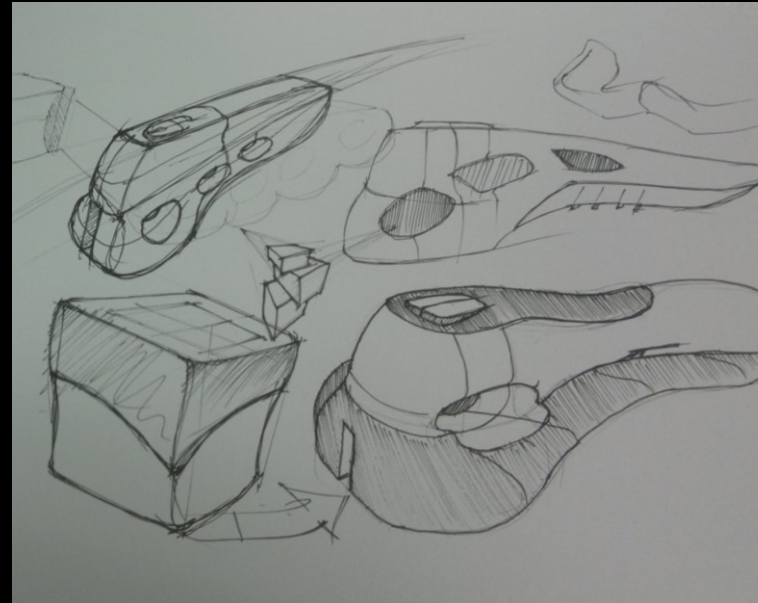
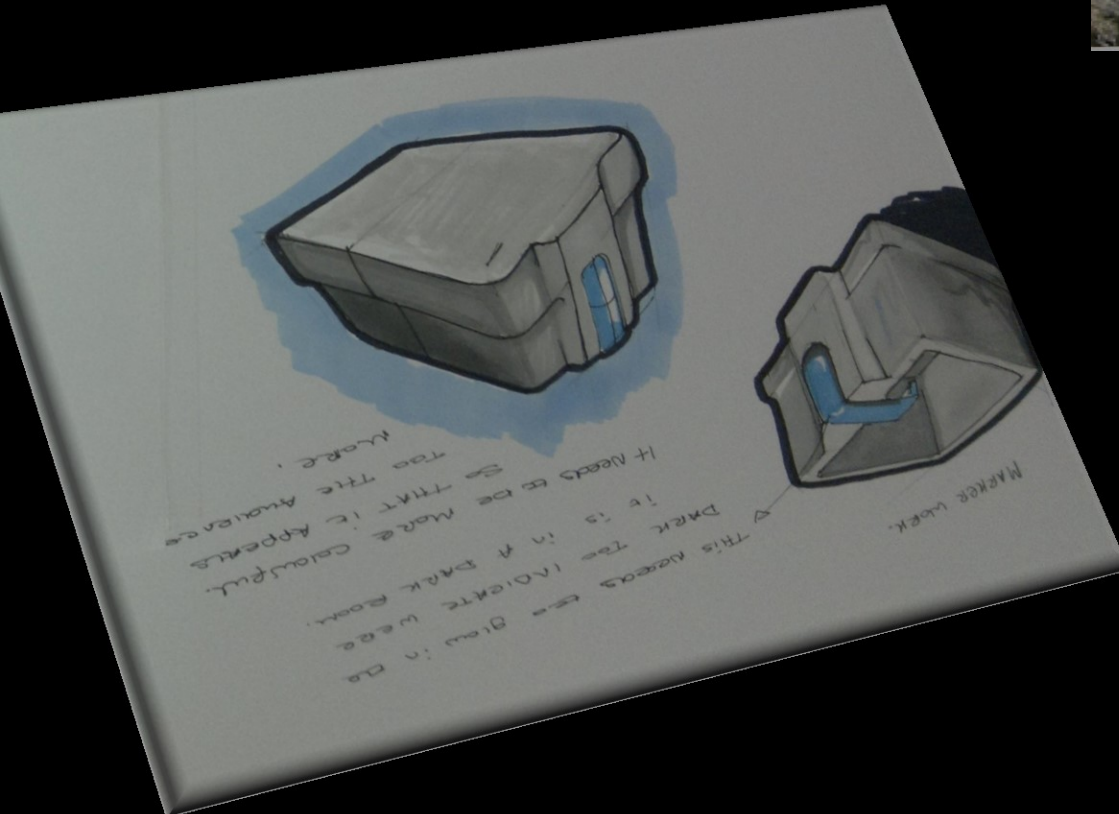




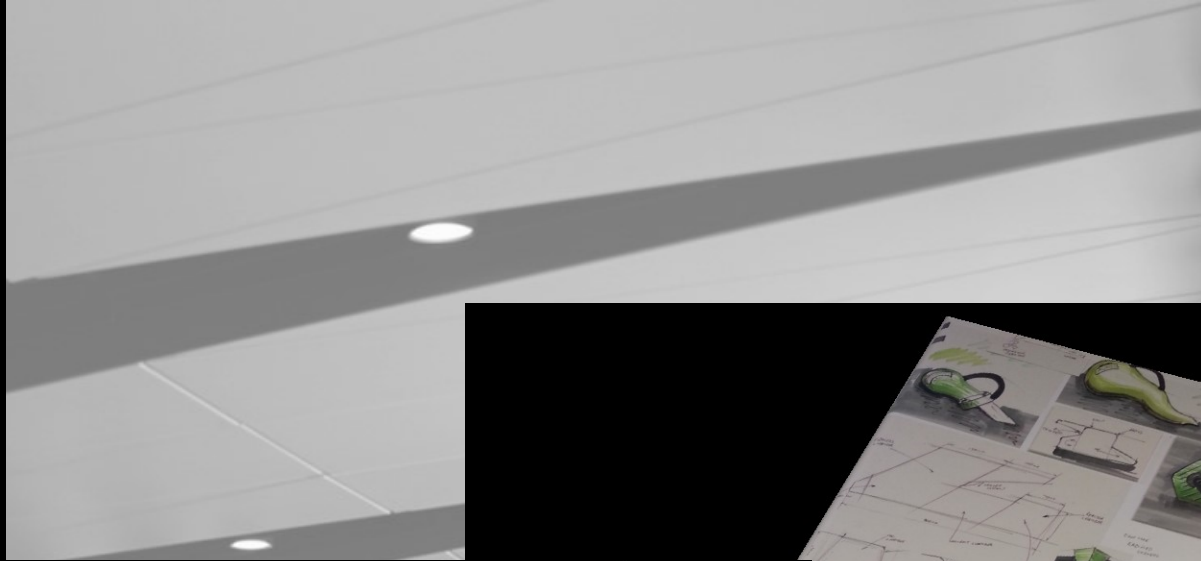
**Examples of undergraduate design  
and technology students work.**



**Examples of undergraduate design and technology students work.**







Solid State

Function

Material

Manufacture

Check on what you ideas...

Development

May have some CAD/CAM Drawings!

This Design

Real model

Little deeper shell

You may have spare for 3 notes

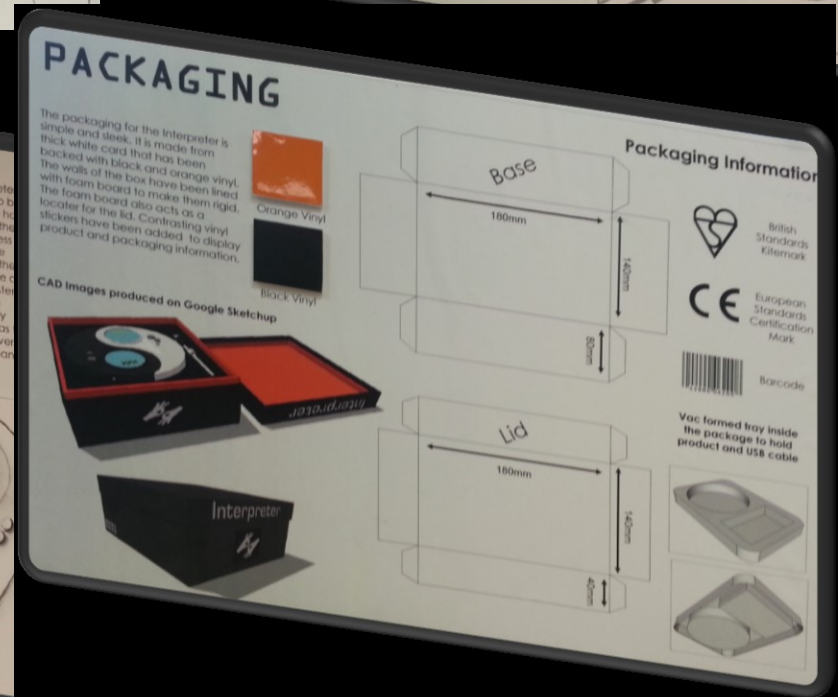
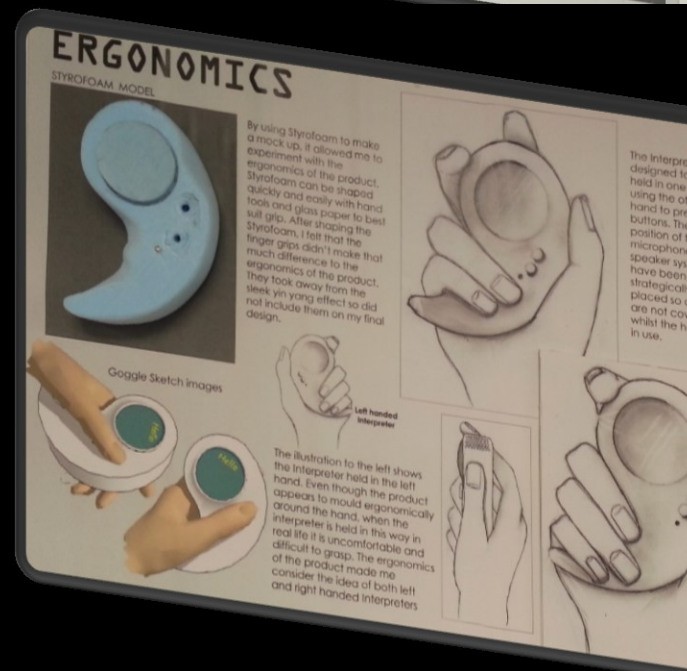
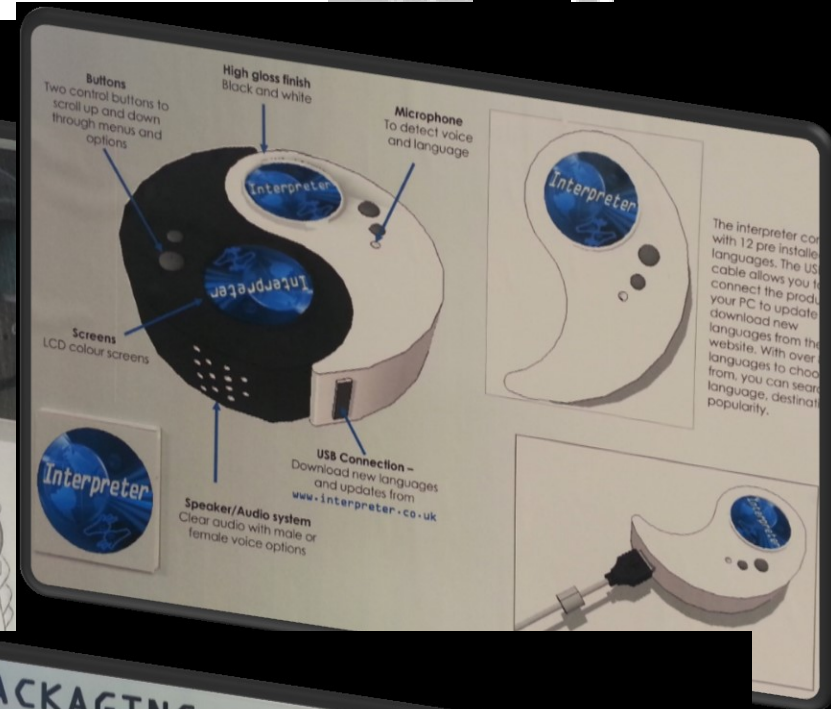
RPT as well as MTD

Arrive please!!

Could explain your ideas. Be an outline of the brief.... Say how you make it - a piece of "self reflection" what you learned, enjoyed how you could use the feedback.....



**Students (the pre-service design and technology teachers) were encouraged to read around the literature, engaged with 'sci-fi film, and consider the notion as a catalyst to stimulate innovative design for themselves, as well as to use with the children they were training to teach.**







**Design fiction as social dreaming.  
Designers shouldn't just look to  
address the issues of today but  
must also look into the future.**

**Dunne and Raby, 2013**



# INCREASING STUDENT ENGAGEMENT AND ATTAINMENT THROUGH THE IMPLEMENTATION OF TECHNOLOGY ENHANCED LEARNING



Dawne Bell and David Wooff, Edge Hill University

Technology Enhanced Learning (TEL) has emerged to be one of the latest 'buzz' words, but within design and technology does 'TEL' really have any significant impact upon improving students learning and subsequently their attainment?

This article seeks to share aspects of some of the work recently undertaken by undergraduate trainee teachers from Edge Hill University during their professional teaching placements. The work originates from the utilisation of new learning technologies in an undergraduate module, which sought to improve their student learning experience and improve academic attainment.

The module, which used the notion of 'design fiction' as a catalyst for work, was designed to encourage trainees, on the Design and Technology BSc undergraduate course to use TEL in the production of a futuristic concept design product. The module delivery was developed to 'echo' the content, and through the introduction of innovative and creative approaches trainees were encouraged to capture their progress using TEL.

Previously this module promoted the use and production of a traditional paper based design portfolio and three-dimensional concept solid block model. The TEL strategies and approaches were introduced in addition to the traditional modes of study already in existence and at no time were trainees under any obligation to engage in TEL and were able to select learning and teaching strategies wholly dependent upon their own personal preference.



For those trainees who expressed a desire to engage with the TEL initiative the new approaches included the enhanced use of the virtual learning environment, the use of blogs as an alternative to the production of a traditional paper based design folio, with supplemental work engaging trainees in the generation and utilisation of QR Codes to communicate their visual communication design decisions and concepts to others.

Following completion of the module a number of the trainees then proceeded to adopt aspects of their work and integrated some of the TEL approaches whilst on their teaching placements, to enhance the delivery of lessons, increase the engagement of students and improve levels of attainment. Teaching placements were undertaken predominantly within mainstream secondary school learning environments across the North West of England.

**The purpose was to support  
the pre-service teachers to  
challenge their own  
conceptions of the subject.**

**EXPLORING**

# AUGMENTED REALITY

Dawne Bell and Rob Jones, Edge Hill University

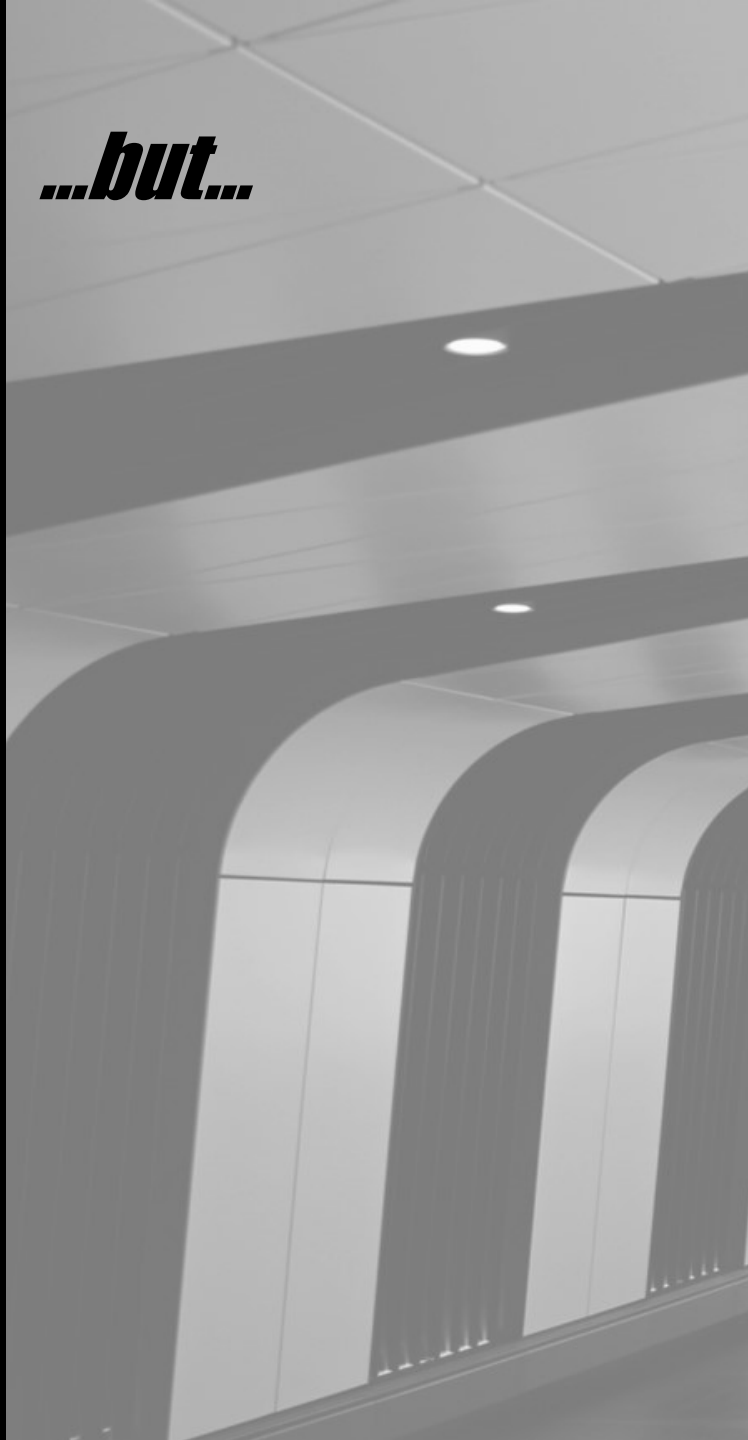


In September's edition of D&T Practice (Issue 3.2012) David Wooff and I wrote about how staff were working with trainees on the Design and Technology BSc Initial Teacher Training course, using the notion of 'Design Fiction' as a catalyst for their design work, to explore the effective employment of Technology Enhanced Learning (TEL) such as the use of QR Codes, Prezi and Blogs. The outcomes had a series of positive impacts, not only on the trainee teacher's attainment, motivation and engagement but where trainees had engaged in aspects of the TEL whilst on their teaching placements in schools the impact upon the student's attainment and progress.

**Within a framework of support to push themselves out of their comfort zones and move beyond their own pre-conceived ideas of how design could or should be taught.**

**Outcomes were disseminated**

***...but...***





***...but...***

***...what impact has the introduction of  
'design fiction' had upon the classroom  
practice of design and technology  
teachers?***



**In this next section of our presentation we showcase a selection of pupil and student work completed under the tutelage of those students (the pre-service teachers) who studied the module all of those years ago ...**

# Design Fiction

Creative, wacky, innovative, futuristic.



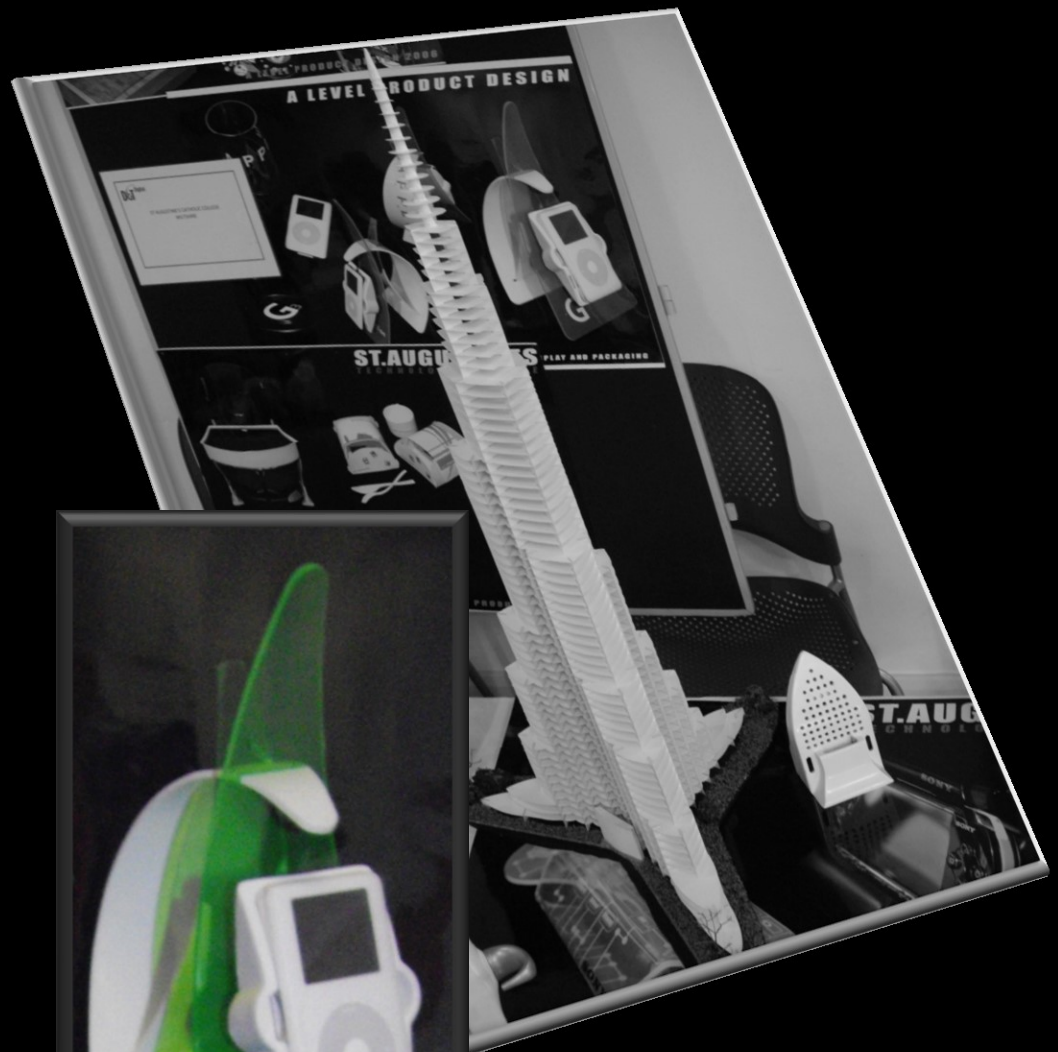
Exemplar pupil work



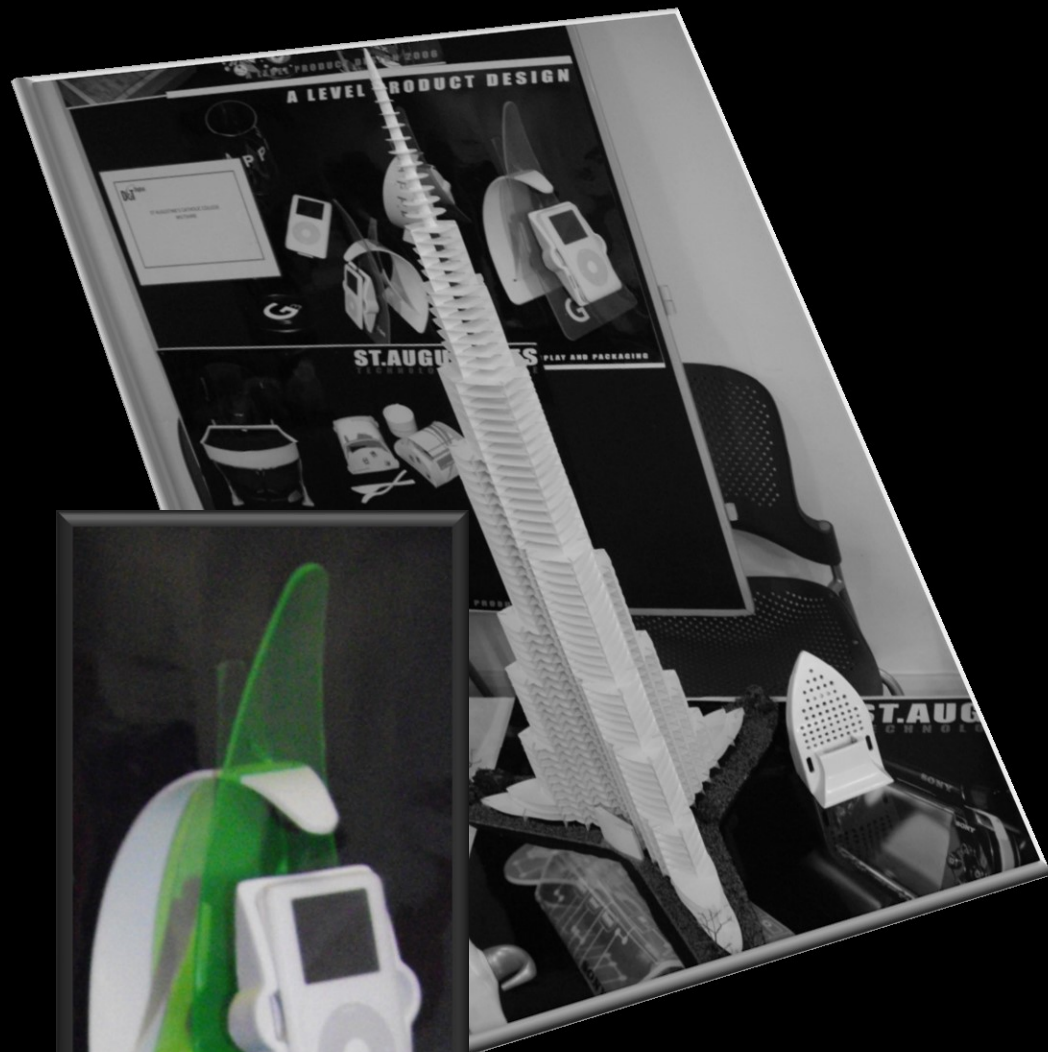


**Exemplar pupil work**



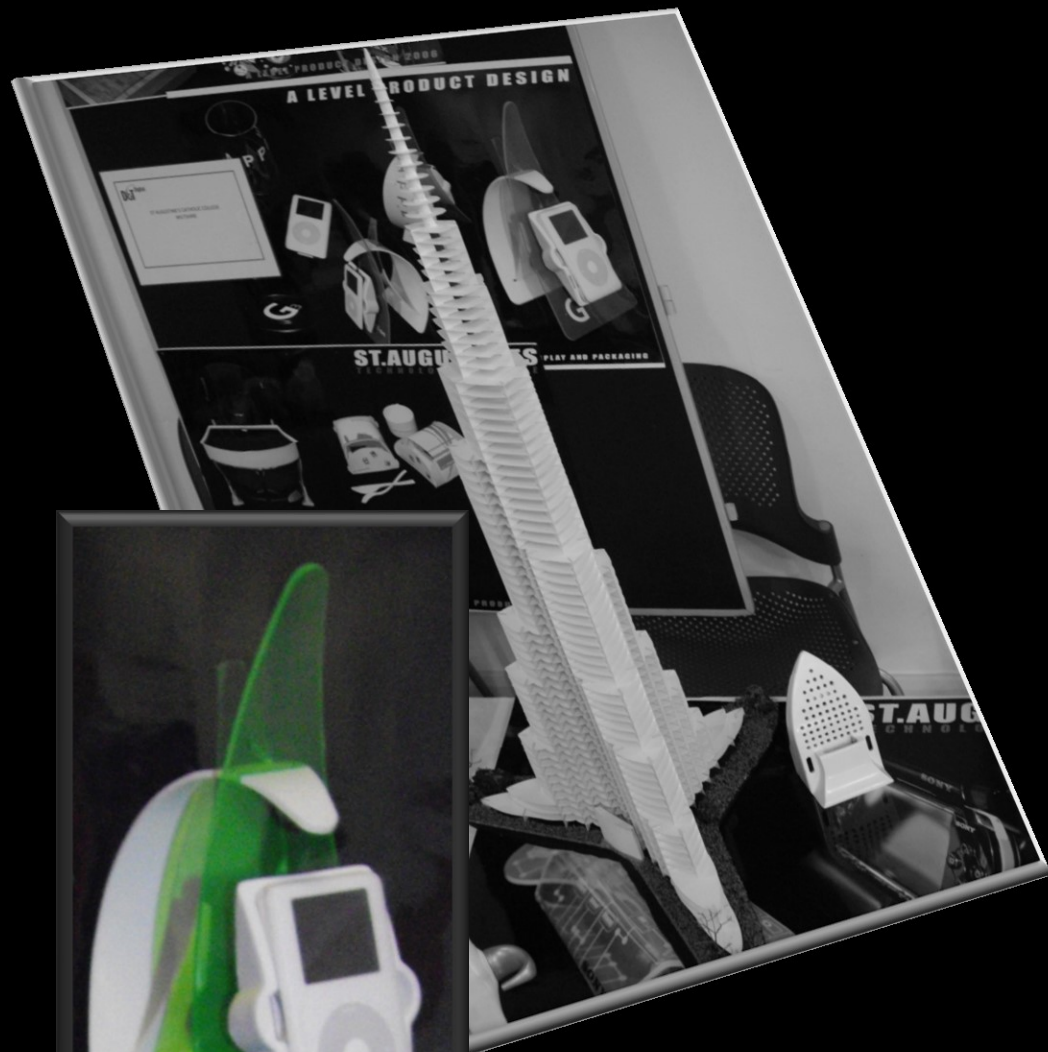


**Exemplar pupil work**

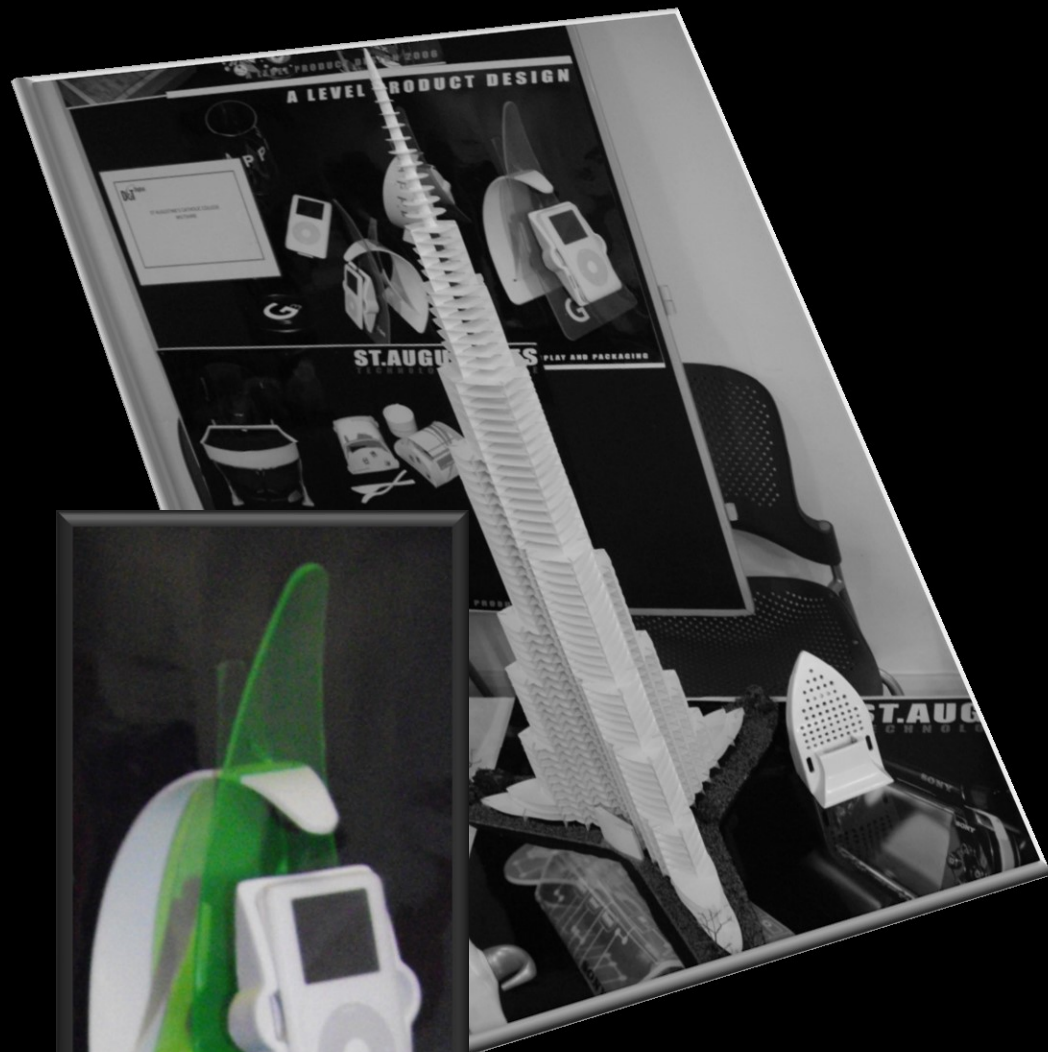


**Exemplar pupil work**



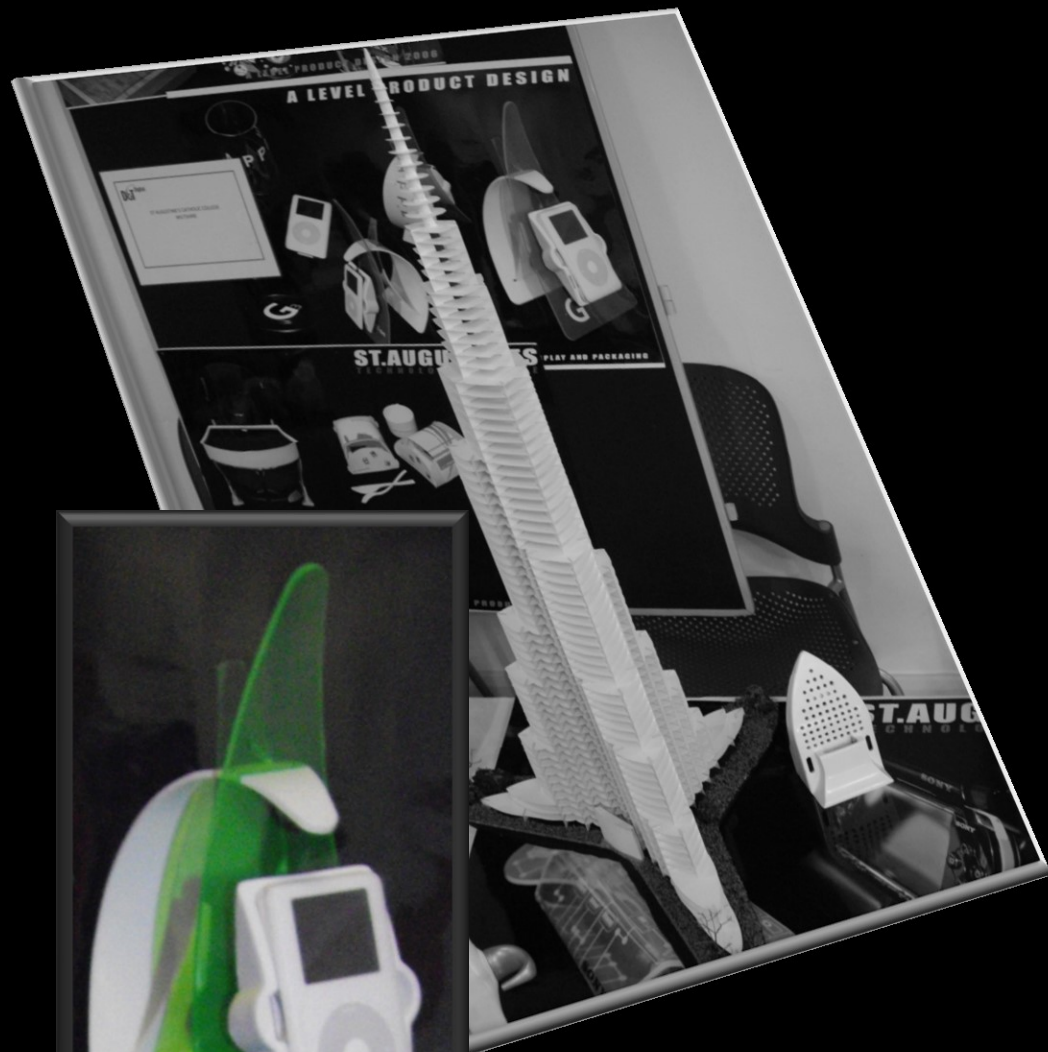


**Exemplar pupil work**



**Exemplar pupil work**

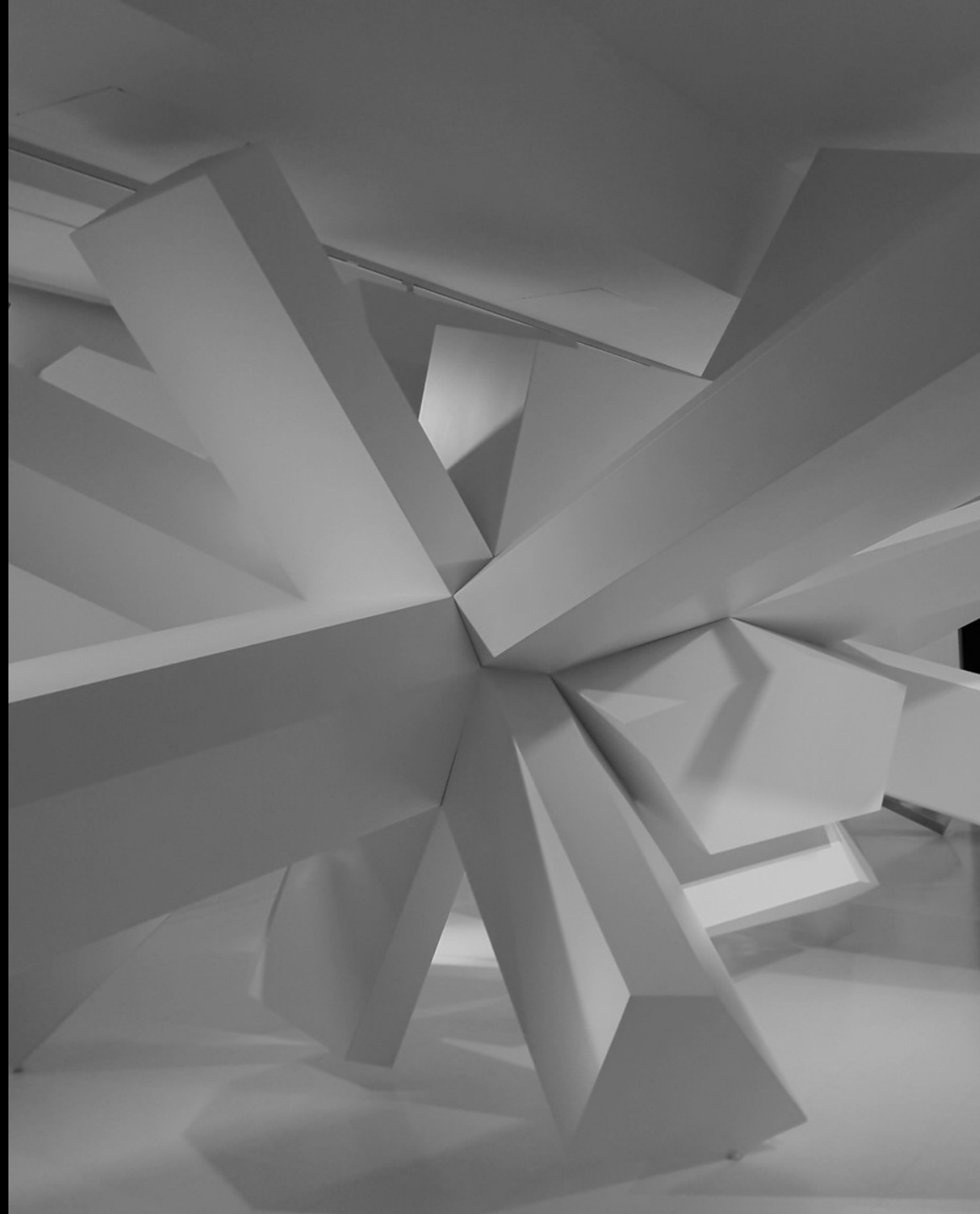




**Exemplar pupil work**



**Encouraging children from an early age to speculate, and use the notion of design fiction to help create a futuristic solution to solve a fictional design problem.**



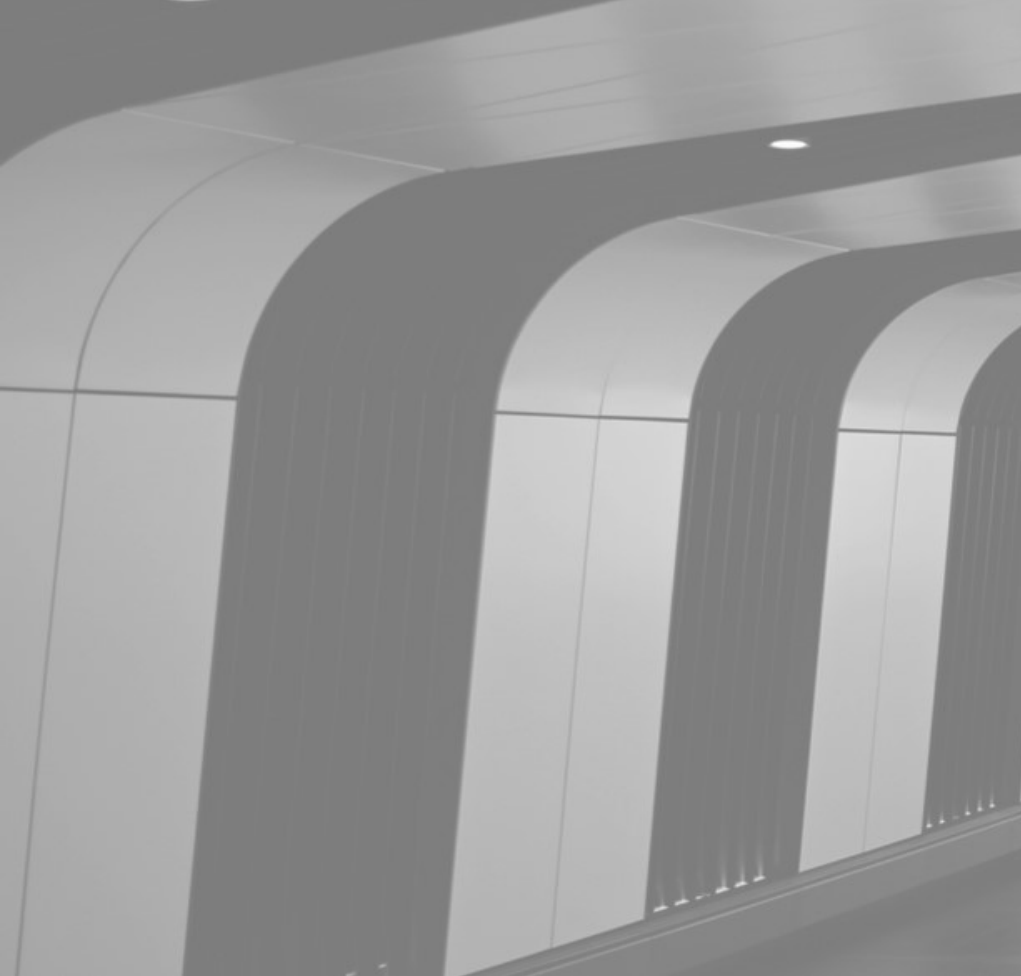


**The notion of what might be  
rather than what is.**

**The use of fantasy as a positive  
to support young children to  
engage in creative, designedly  
activity was advocated by  
Stables (1992).**



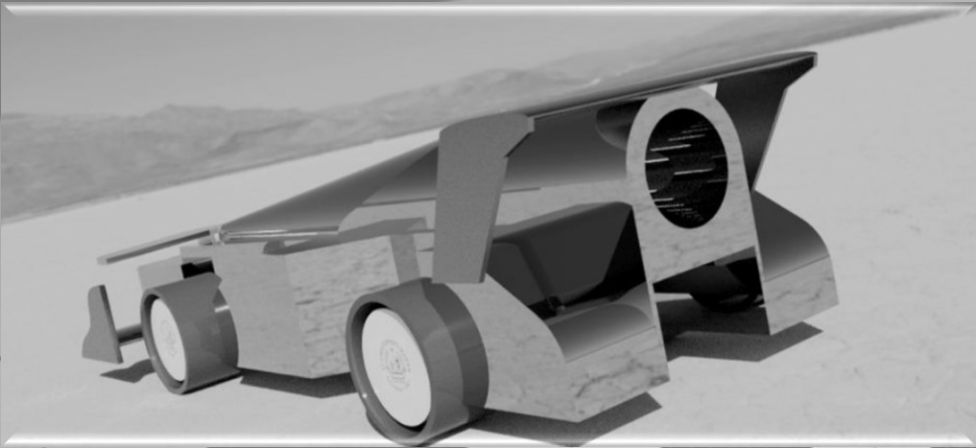
**As these examples  
illustrate design  
developments may  
include the use of  
computer modelling  
and simulation.**

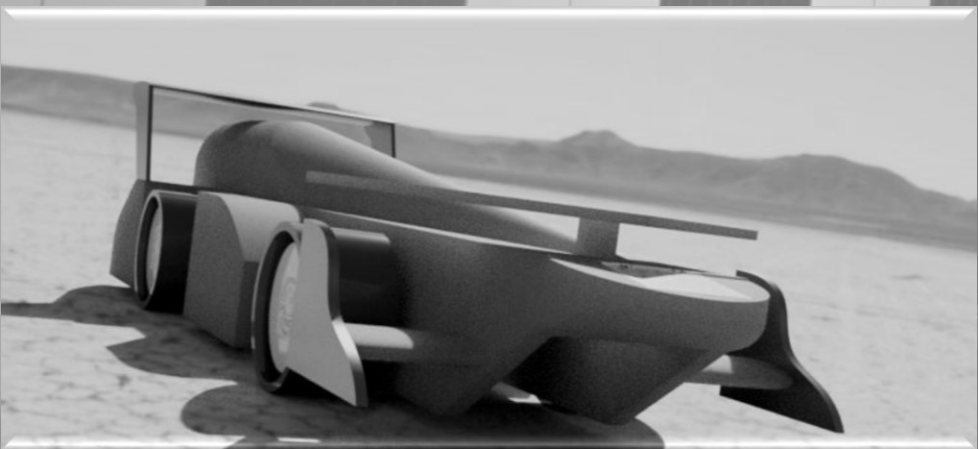
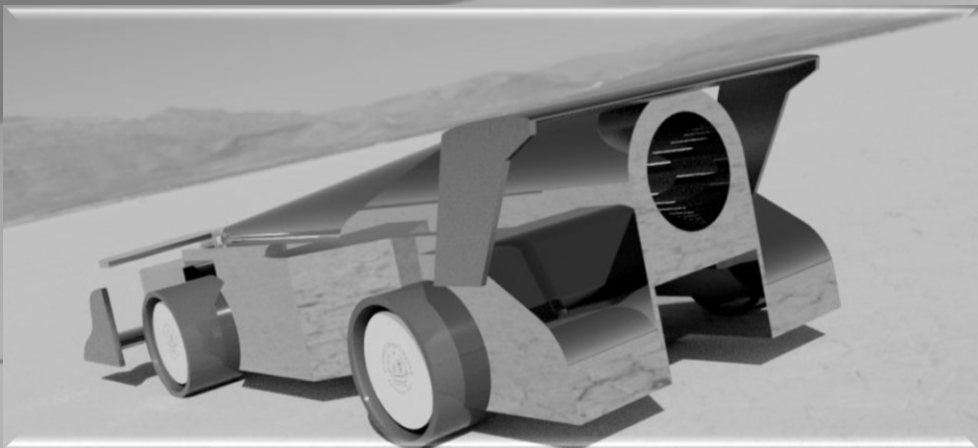


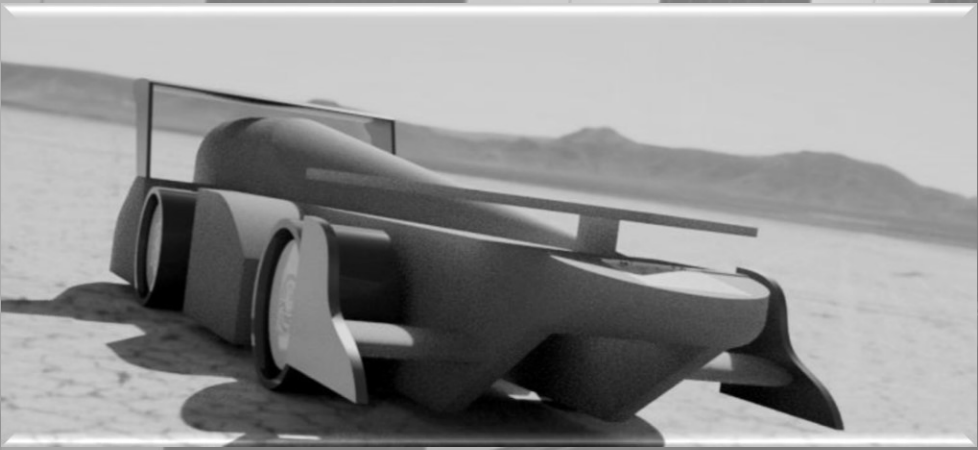
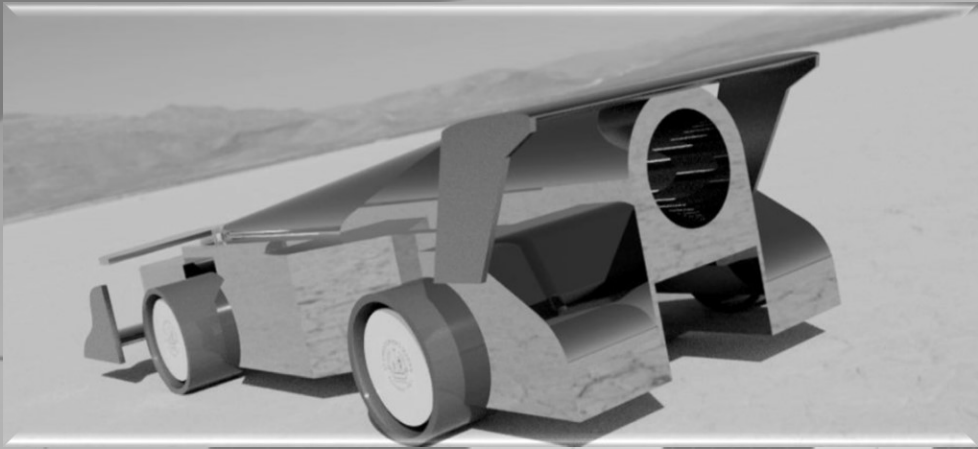




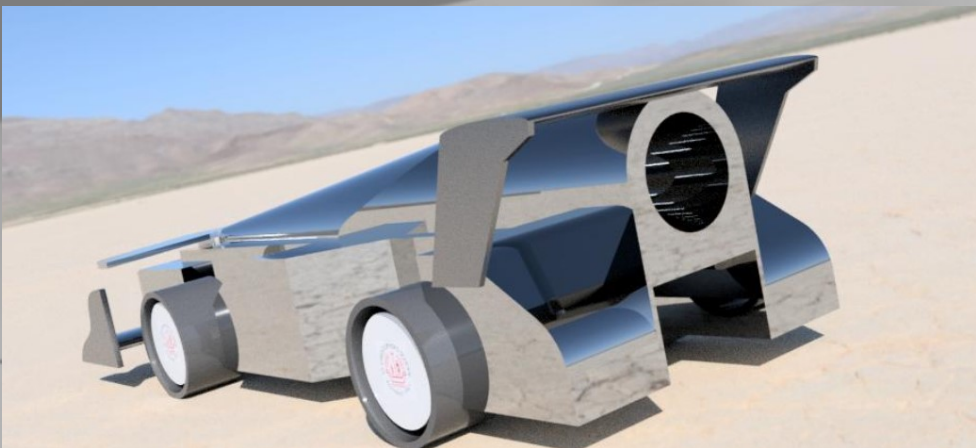
**Design developments  
may include the use of  
computer modelling  
and simulation.**







**Where a prototype models have been created the focus has been to support pupils to develop skills; cutting, shaping and forming, in the realisation of a really high-quality finish.**



**Where a prototype models have been created the focus has been to support pupils to develop skills; cutting, shaping and forming, in the realisation of a really high-quality finish.**



**Using the notion of design fiction to teach children about new and emerging technologies.**





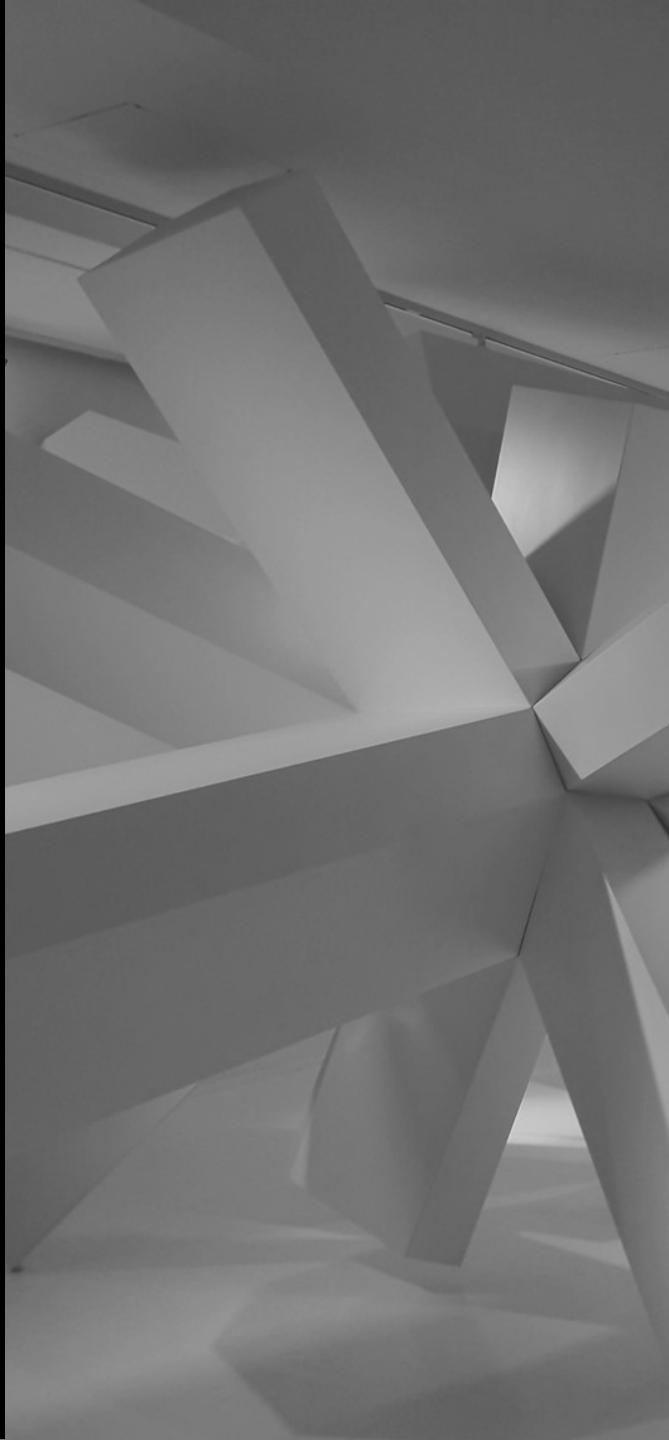
**Focusing on some big themes  
such as sustainability,  
transport, the environment,  
communication...**



**and  
the innovation application of new materials**





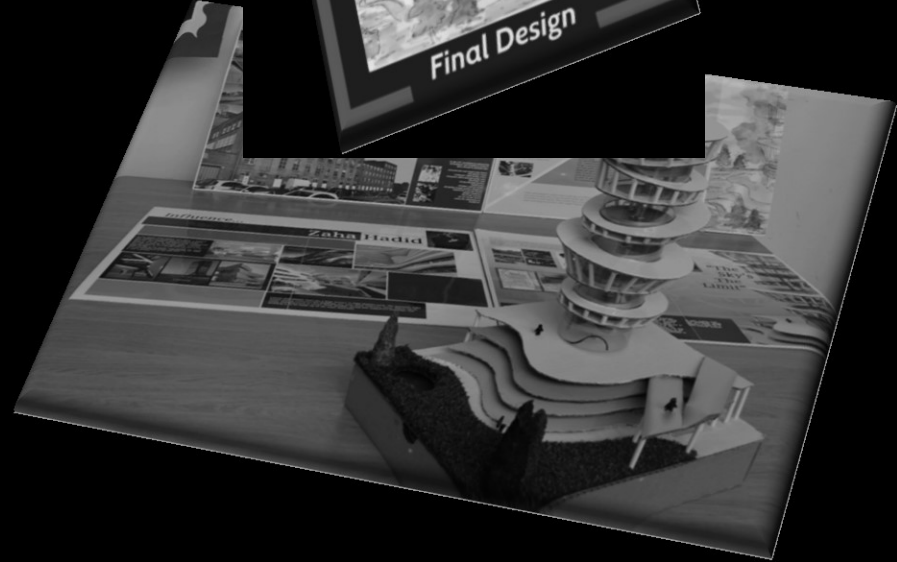
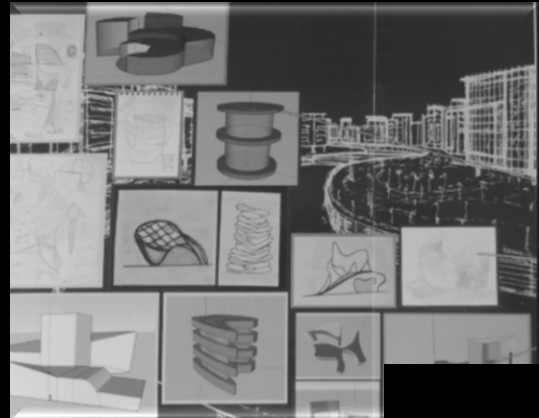
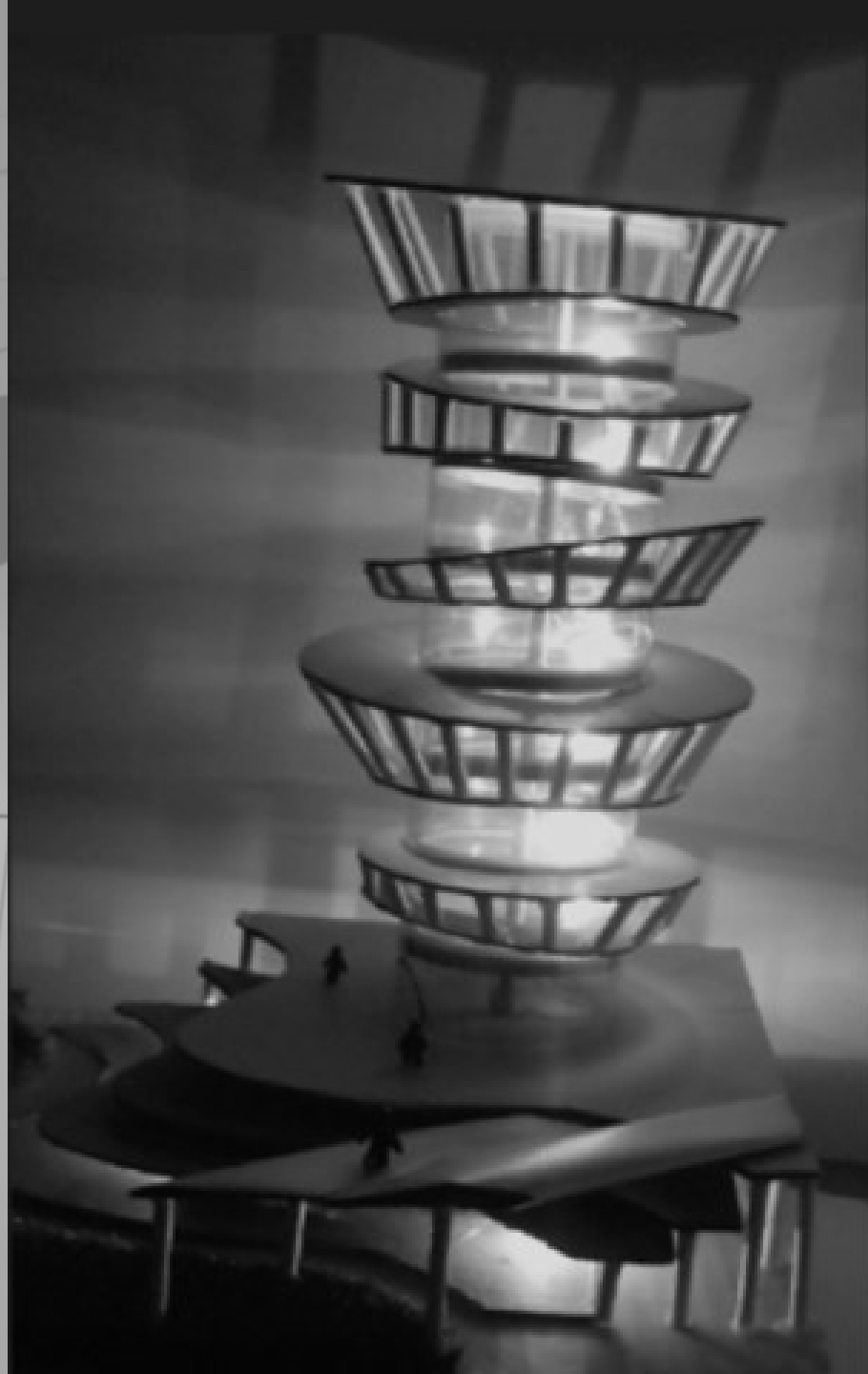


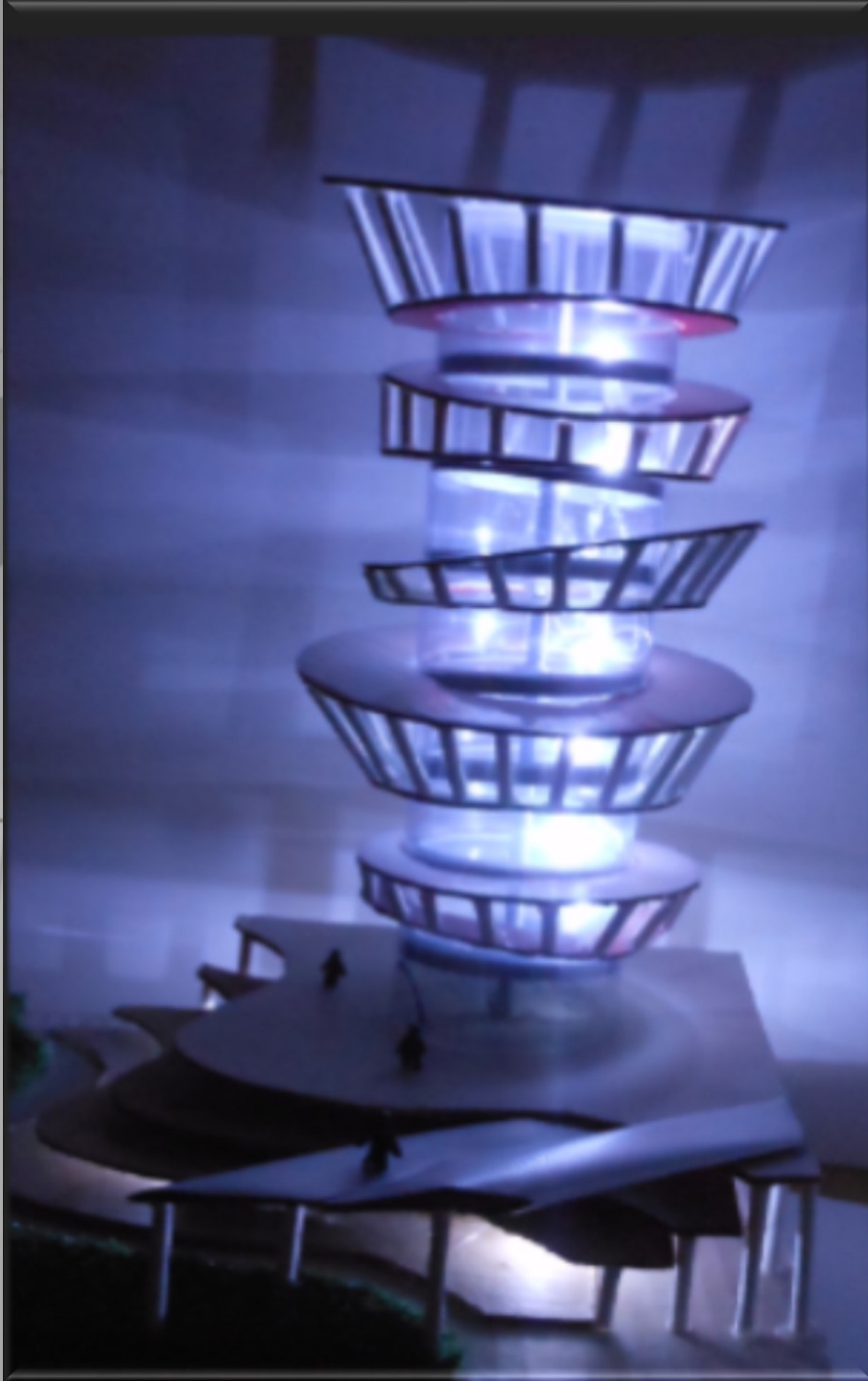
**Facilitating an environment where**

***“children don’t have to make a fully functioning working product so they have more time to focus on the development of other key skills”***



Adam Hall, Maria Antazo, and Emmanuel Moro



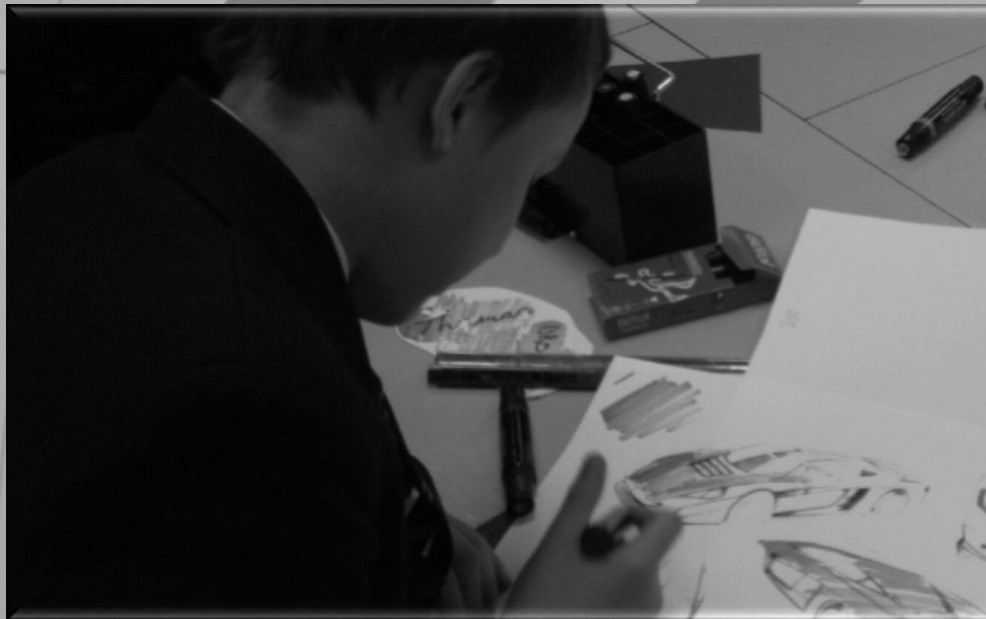


**Advantages cited by students (the pre-service teachers) included an increase in student motivation to engage in designedly activity.**









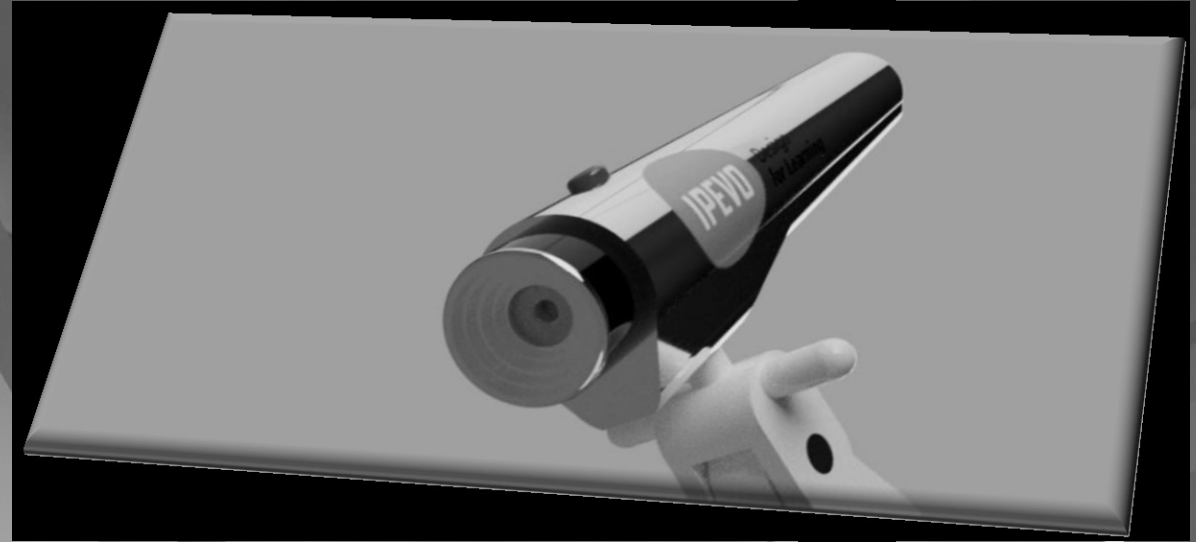
**And they also said that they found using design fiction to be a really useful tool to support the effective delivery of design within design and technology education.**





**So what next? ...**

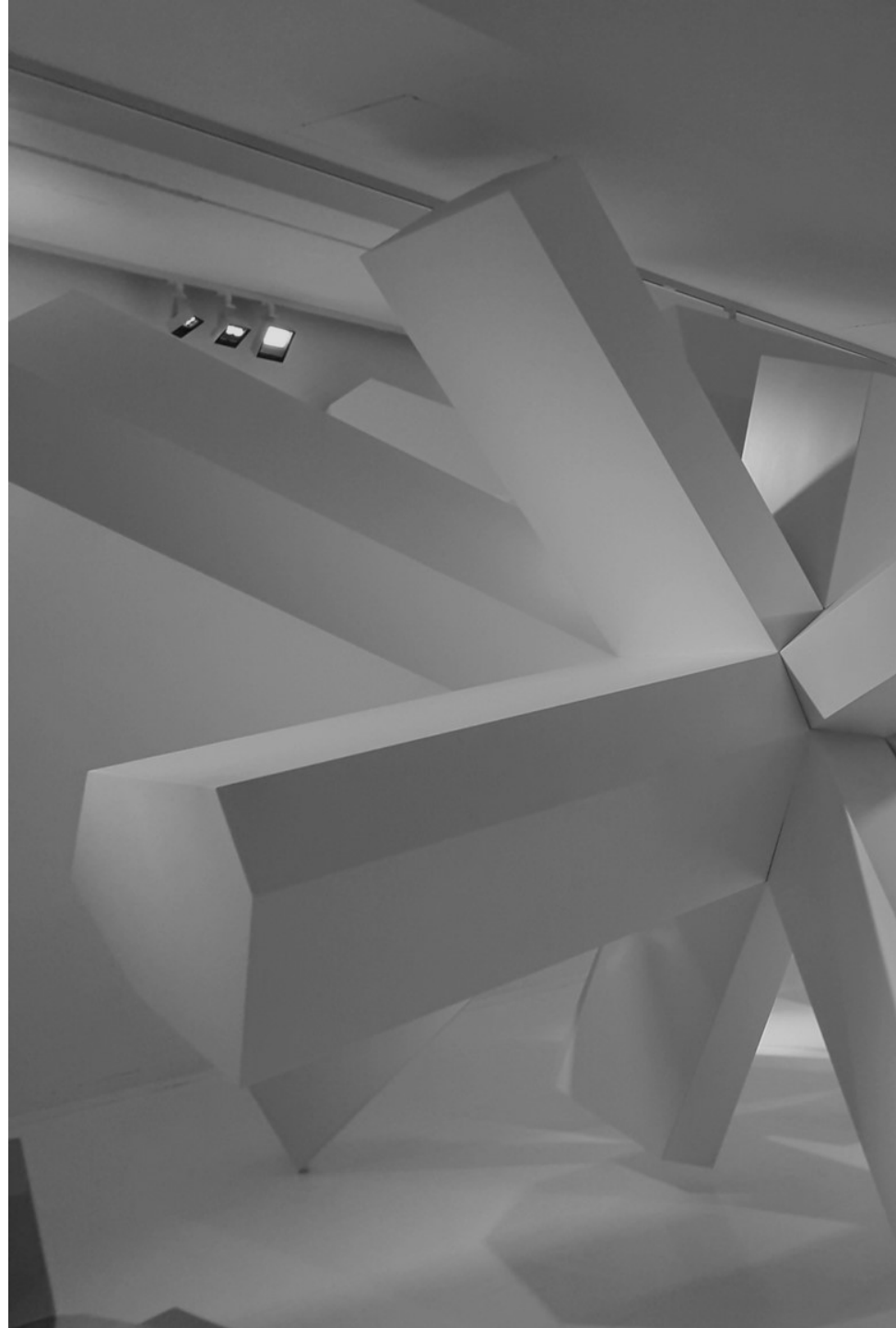
**In the decade since  
completing their teacher  
training design fiction  
has become well-  
established as a valid  
concept within the field  
of speculative design...**



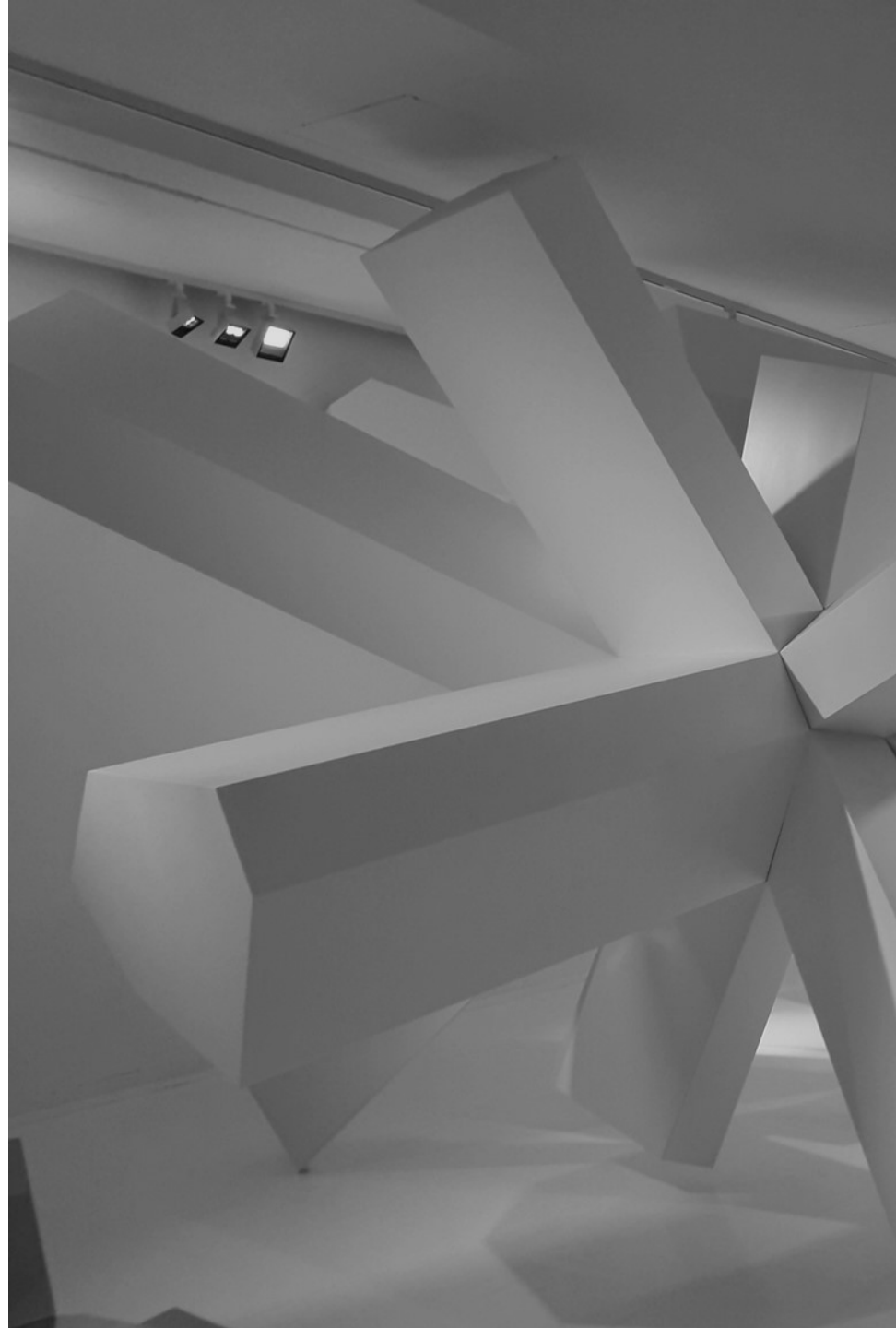
**...and students (the pre-service who are now experienced teachers) recalled design fiction as a concept introduced to them at University.**

**However, while it was evident that they had been active in using design fiction to stimulate design work within their own practice, it became clear that they hadn't always updated their working knowledge of the notion itself.**





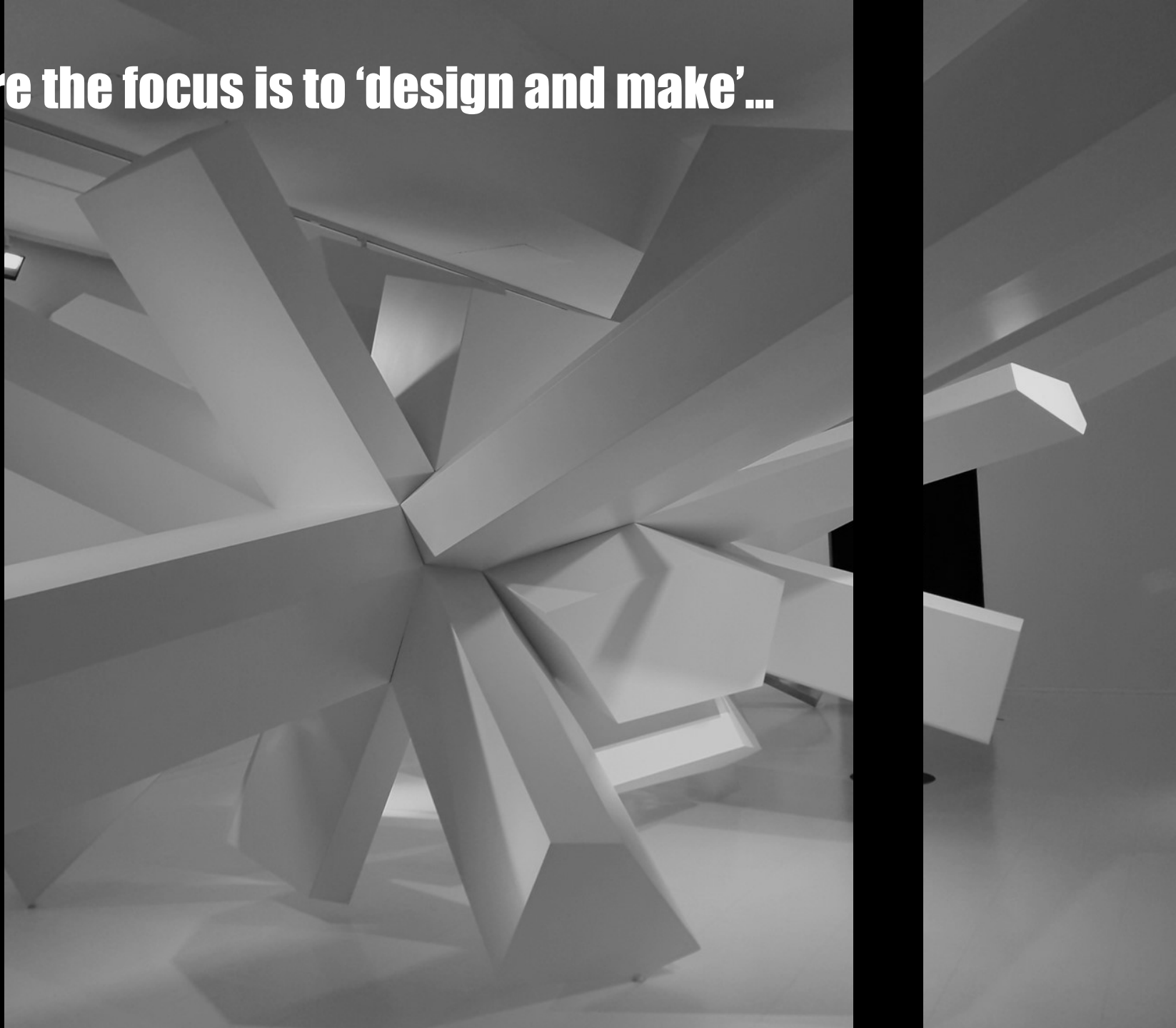
**Within the context of global consumerism, a curriculum that advocates the consideration of the long-term effects that new technologies may have within society could be just what the subject needs.**



**However, how this could be developed within the design and technology curriculum would need careful consideration...**

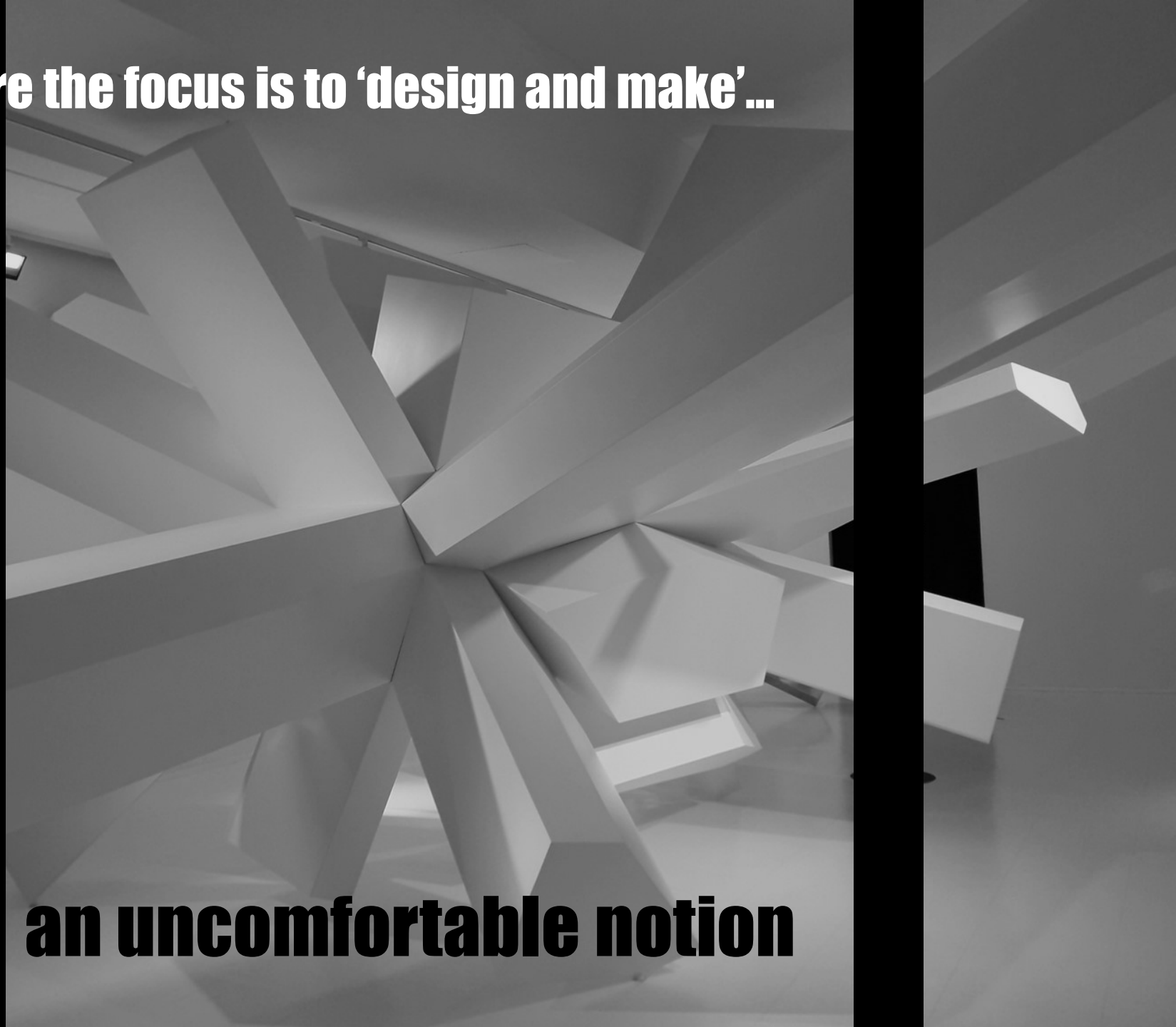


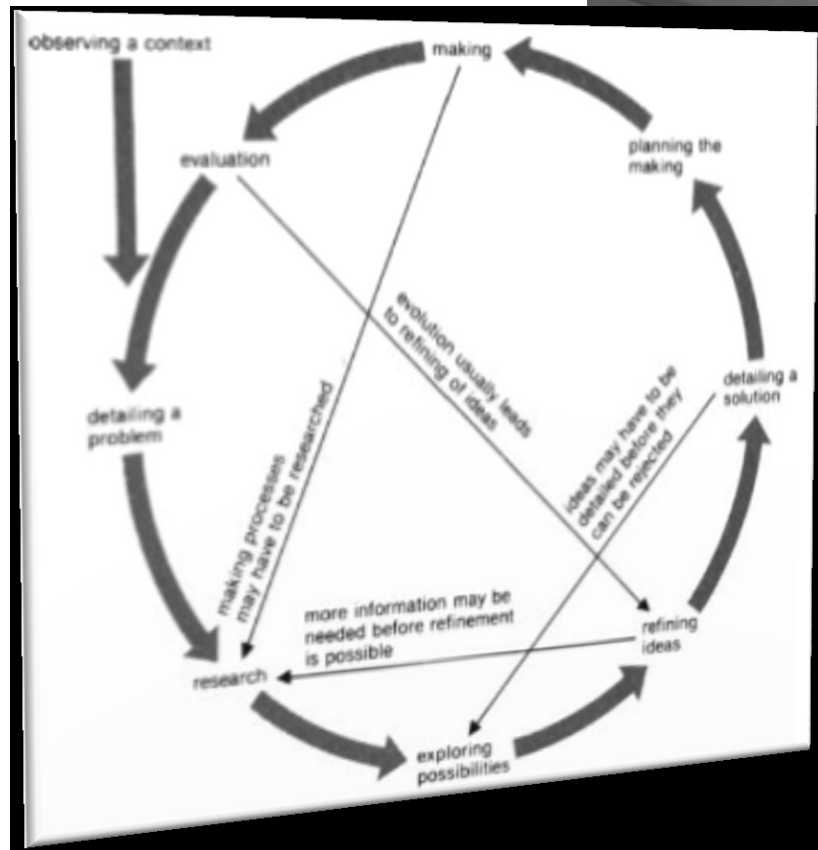
**...because for a subject where the focus is to 'design and make'...**



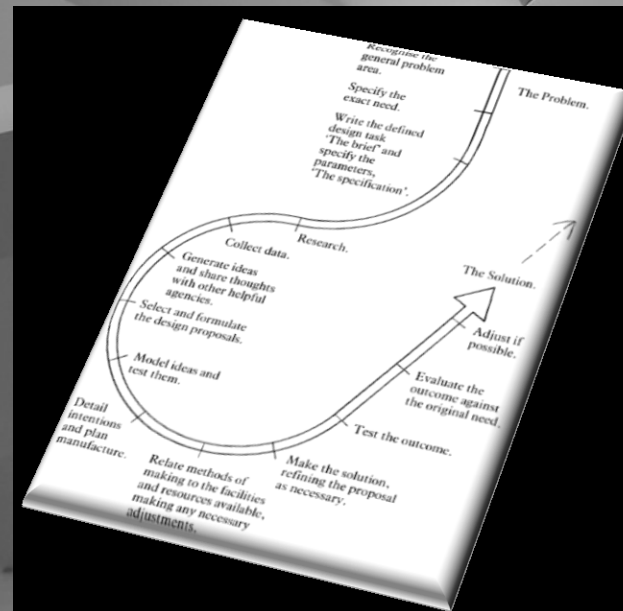
**...because for a subject where the focus is to 'design and make'...**

**...this could be an uncomfortable notion**

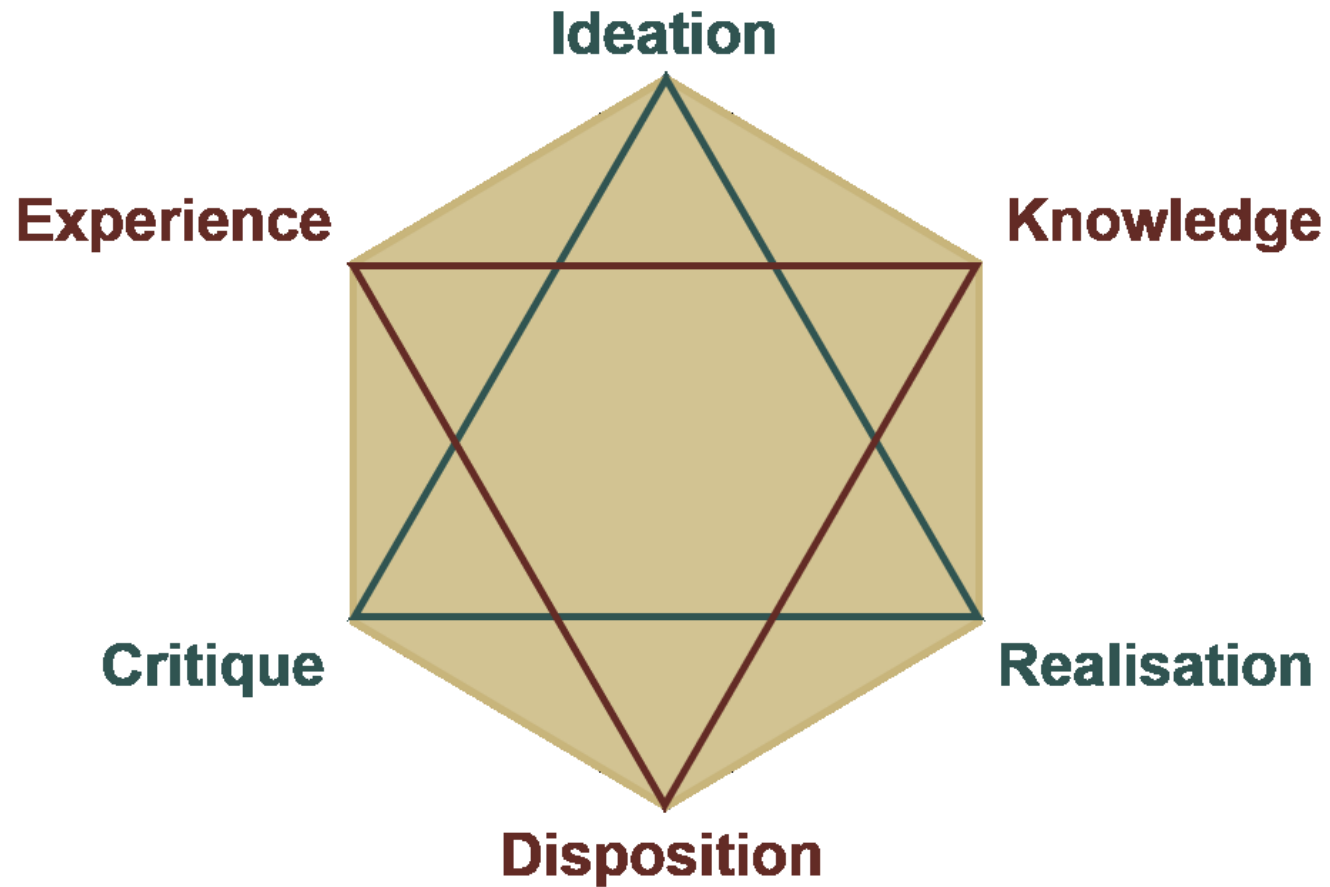




**A starting point could be to challenge the subject's well-established pedagogical models of design.**



**Describing design and technology, adapted from Kimbell & Stables (2007:73)**



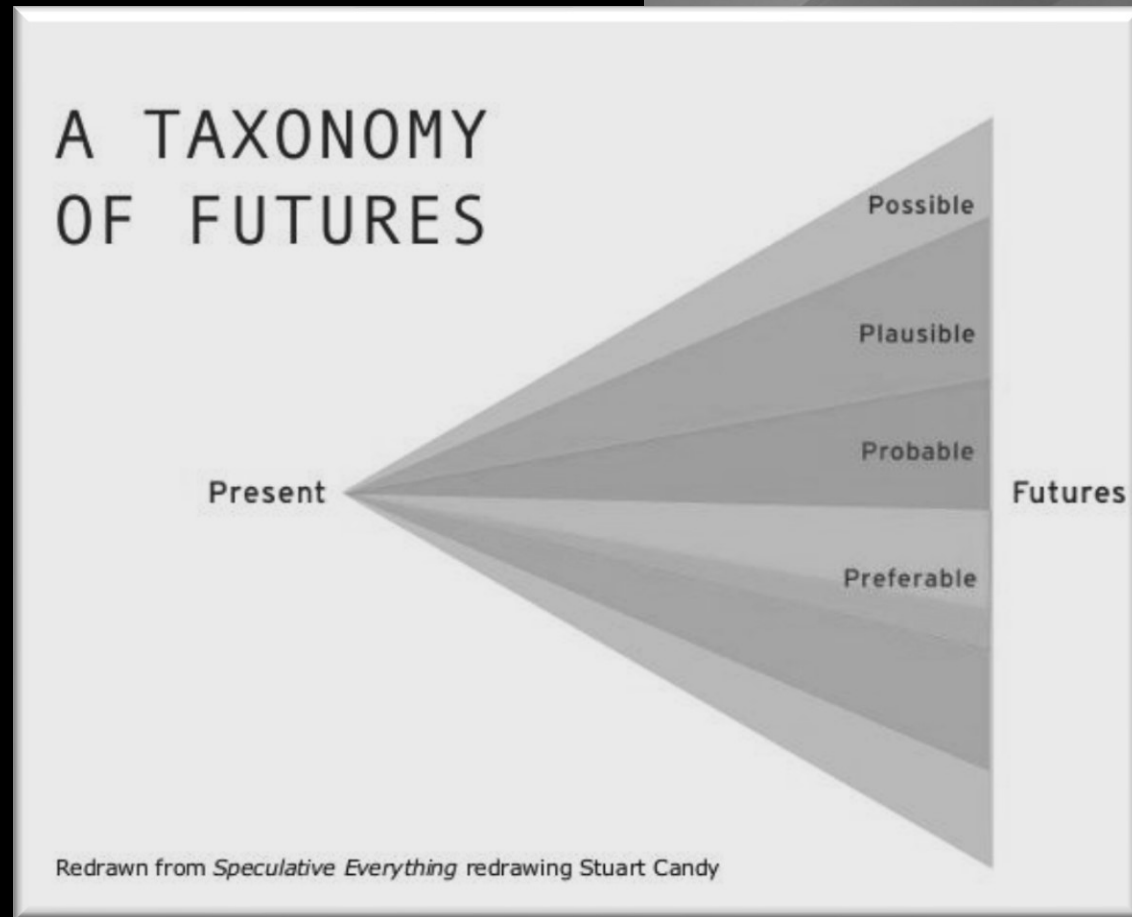
**To challenge current and historic understandings of design and technology...**

**Irving-Bell et al., 2019**

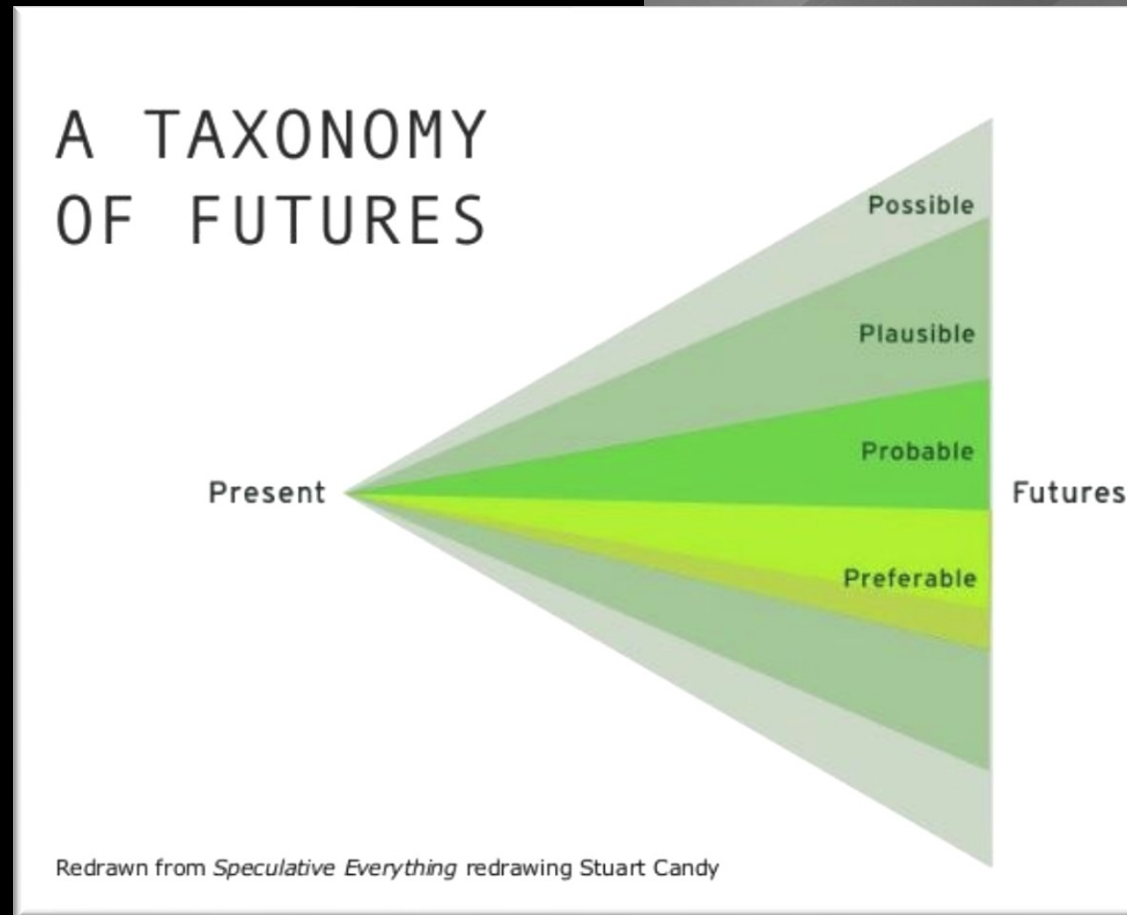
**Challenging current and historic understandings of design and technology: a working model**



**To perhaps  
replace  
them, with a  
different  
model that  
better  
represents  
new ways of  
thinking?**



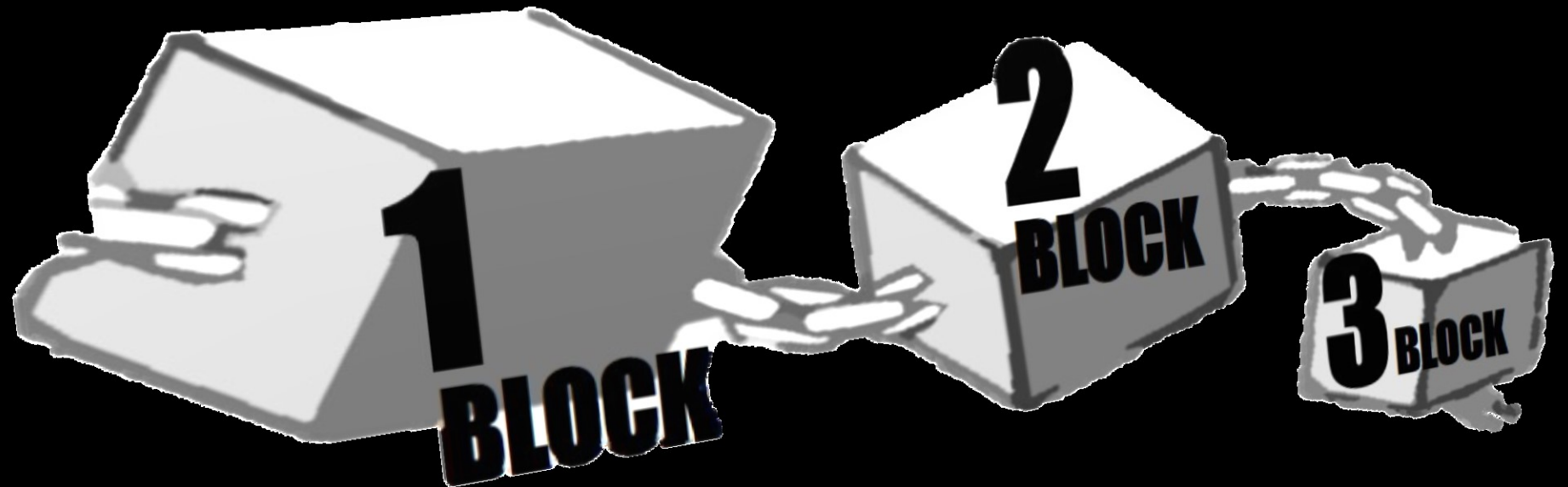
**To perhaps  
replace  
them, with a  
different  
model that  
better  
represents  
new ways of  
thinking?**



**In moving this work forward, our next steps would advocate ways in which teachers may be supported to access and develop resources which reflect current thinking within the field of (speculative) design.**



**Particularly with regard  
to spimes, the notion of  
blockchain and the use  
of new, transformative  
technologies ...**





***...to help children to better understand the concept of responsible design.***



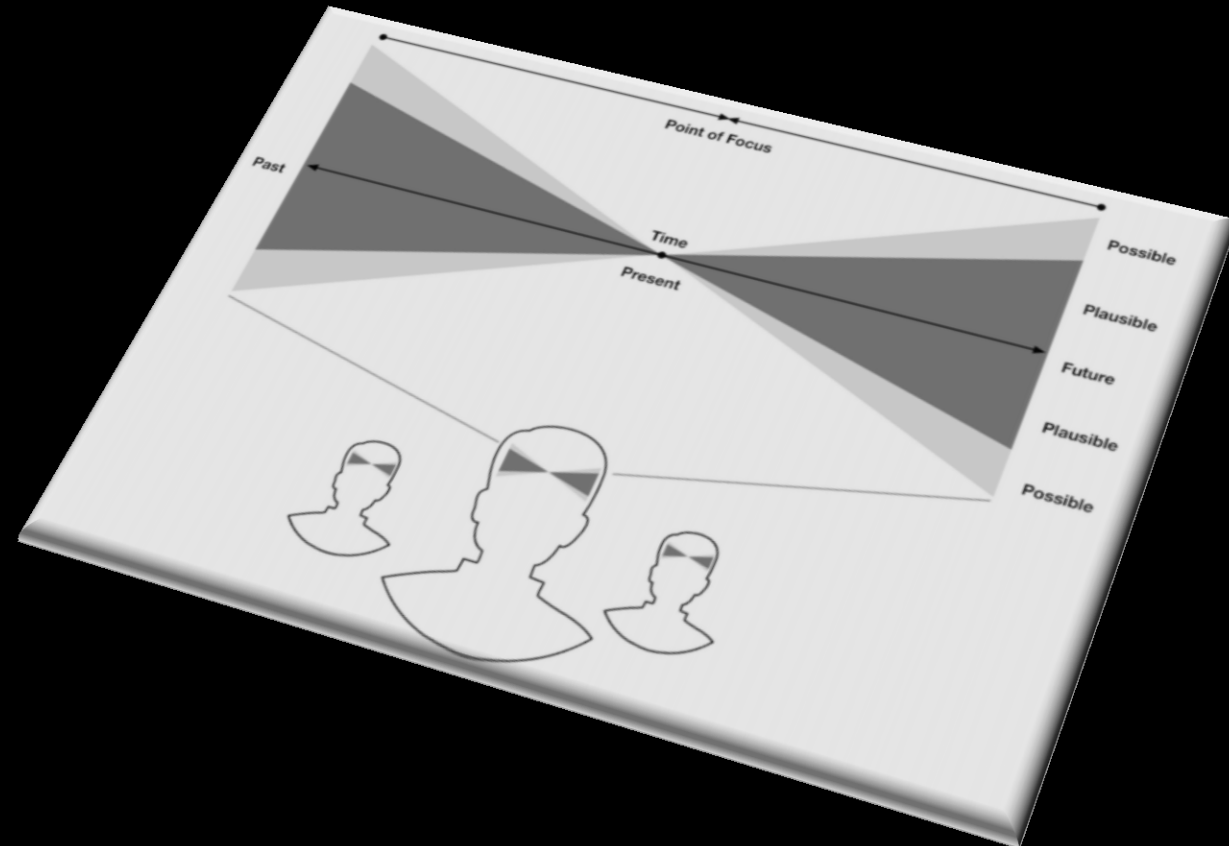




***...to help children to better understand the concept of responsible design.***

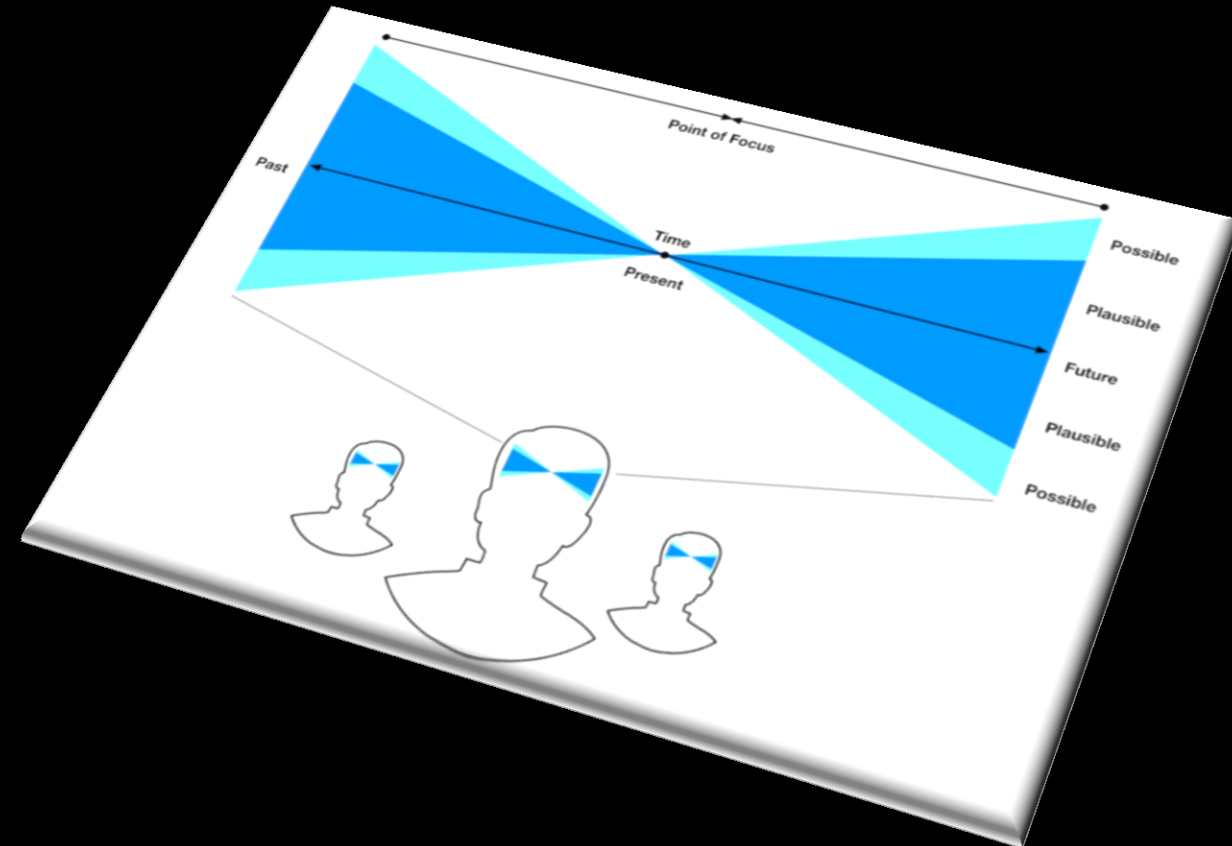
## ***In conclusion:***

**Early work sought to embrace notion of design fiction, and it is clear that it is a useful platform from which to instigate and stimulate design debate**



**The hermeneutic model of the future (Lindley, 2018:156)**

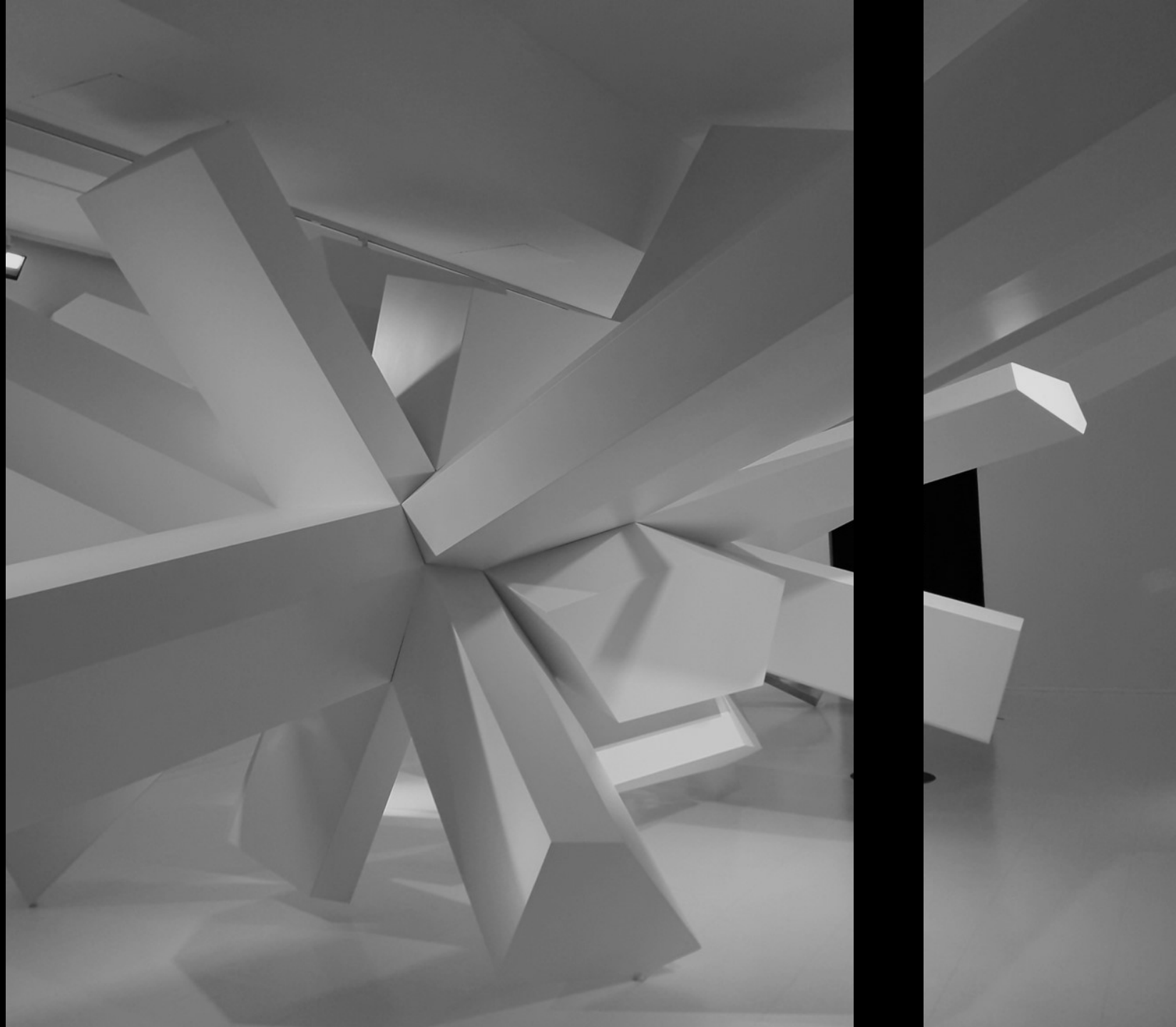
**However, while the field of speculative design has evolved significantly over the past decade, the innovations and developments which could be advantageous to the study of design in schools, have not been as successfully transferred into the classroom as perhaps they might have been.**



**The hermeneutic model of the future (Lindley, 2018:156)**

**“Embracing new approaches to design thinking may be pivotal in supporting teachers and will be the focus of future work, to support teachers of design and technology to re-imagine the subject, its purpose and value within a modern school curriculum”**

**Irving-Bell *et al.*, 2019**



**Featuring undergraduate work from our design and technology student teachers including contributions from:**

***Ryan Beales, David Fields, Joseph Johnson, Marc Simpkin, Katherine Elliott, Phil Johnson, Andrew Connolly, John Cox, Sharon Davies, Myles Hall and Richard Woods.***

**And with special thanks for also sharing their student and pupils' outcomes:**

**Katie Holland,  
Shrewsbury International School,  
Bangkok,  
formerly Le Rocquier School, Jersey, UK.**

**Traci Pierce,  
Ormskirk High School, formerly  
Thornleigh Salesian College , England.**

**Elizabeth Flynn,  
Sutton Sports College, England.**

**Stuart Peet,  
Sale High School, England.**

**Martin Plunkett,  
St. Chris Bahrain, British International  
School, Bahrain.**





Featuring undergraduate work from our design and technology student teachers including contributions from:

*Ryan Beales, David Fields, Joseph Johnson, Marc Simpkin, Katherine Elliott, Phil Johnson, Andrew Connolly, John Cox, Sharon Davies, Myles Hall and Richard Woods.*

**And with special thanks for also sharing their student and pupils' outcomes:**

**Katie Holland,  
Shrewsbury International School,  
Bangkok,  
formerly Le Rocquier School, Jersey, UK.**

**Traci Pierce,  
Ormskirk High School, formerly  
Thornleigh Salesian College , England.**

**Elizabeth Flynn,  
Sutton Sports College, England.**

**Stuart Peet,  
Sale High School, England.**

**Martin Plunkett,  
St. Chris Bahrain, British International  
School, Bahrain.**



# ***Thankyou***

to our contributors

# ***Key References***

- Bell, D., & Wooff, D. (2012). Increasing Student Engagement and Attainment through the Implementation of Technology Enhanced Learning. D&T Practice: The Design and Technology Publication for the Profession, (3), 16-19.**
- Bell, D., & Jones, R. (2013). Exploring Augmented Reality. D&T Practice: The Design and Technology Publication for the Profession, 1, 15-17.**
- Bleecker, J. (2009). Design Fiction: A short essay on design, science, fact and fiction. Near Future Laboratory.**
- Dunne, A., & Raby, F. (2013). Speculative everything: design, fiction, and social dreaming. MIT press.**
- Hardy, A. (2018). Using design fiction to teach new and emerging technologies in England. Technology and Engineering Teacher, 78(4), 16-20.**
- Irving-Bell, D., McLain, M., and Wooff, D. (2019). Re-designing Design and Technology Education: A living literature review of stakeholder perspectives. Conference Paper in Developing a knowledge economy through technology and engineering education. PATT 37 Conference, University of Malta, 3<sup>rd</sup>-6<sup>th</sup> June 2019.**
- Lindley, J. G. (2018). A thesis about design fiction. Lancaster University.**
- McLain, M., McLain, M., Tsai, J., Martin, M., Bell, D., & Wooff, D. (2017). Traditional tales and imaginary contexts in primary design and technology: a case study. Design and Technology Education, 22(2), 26-40.**
- Stables, K. (1992). The role of fantasy in contextualising and resourcing design and technological activity. IDATER 1992 Conference, Loughborough: Loughborough University.**
- Stead, M, Coulton, P, Lindley, J and Coulton, C. (2019). The Little Book of Sustainability for the Internet of Things, PETRAS Little Book Series, Imagination, Lancaster University. ISBN 978-1-86220-360-0.**
- Sterling, Bruce, 2005, Shaping Things. Cambridge, MA: Mediawork / MIT Press.**

# ***Thankyou***

**For viewing our presentation. We hope  
you found it to be of value.**



**TENZ** TECHNOLOGY  
EDUCATION  
NEW ZEALAND

# ***Thankyou***

**For viewing our presentation. We hope  
you found it to be of value.**



**TENZ**

TECHNOLOGY  
EDUCATION  
NEW ZEALAND

**Design Fiction a decade of  
reflection; *The impact of  
teacher training on  
classroom practice.***

**If you would like more information, please do not  
hesitate to get in touch**





# **Design Fiction a decade of reflection; *The impact of teacher training on classroom practice.***

**If you would like more information, please do not  
hesitate to get in touch**

**David Wooff**

 **@DesTech2013**

**[David.Wooff@sunderland.ac.uk](mailto:David.Wooff@sunderland.ac.uk)**



# Design Fiction a decade of reflection; *The impact of teacher training on classroom practice.*

If you would like more information, please do not hesitate to get in touch

**Matt McLain**

 **@The\_DT\_Geek**

**M.N.McLain@ljmu.ac.uk**

**David Wooff**

 **@DesTech2013**

**David.Wooff@sunderland.ac.uk**



# Design Fiction a decade of reflection; *The impact of teacher training on classroom practice.*

If you would like more information, please do not hesitate to get in touch

**Dr Dawne Irving-Bell**

 **@belld17**

**[belld@edgehill.ac.uk](mailto:belld@edgehill.ac.uk)**

**Matt McLain**

 **@The\_DT\_Geek**

**[M.N.McLain@ljmu.ac.uk](mailto:M.N.McLain@ljmu.ac.uk)**

**David Wooff**

 **@DesTech2013**

**[David.Wooff@sunderland.ac.uk](mailto:David.Wooff@sunderland.ac.uk)**



# Design Fiction a decade of reflection; *The impact of teacher training on classroom practice.*

If you would like more information, please do not hesitate to get in touch

**Dr Dawne Irving-Bell**

 **@belld17**

**[belld@edgehill.ac.uk](mailto:belld@edgehill.ac.uk)**

**Matt McLain**

 **@The\_DT\_Geek**

**[M.N.McLain@ljmu.ac.uk](mailto:M.N.McLain@ljmu.ac.uk)**

**David Wooff**

 **@DesTech2013**

**[David.Wooff@sunderland.ac.uk](mailto:David.Wooff@sunderland.ac.uk)**

